United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
University of Georgia,
College of Agricultural and
Environmental Sciences,
Agricultural Experiment
Stations

Soil Survey of Fulton County, Georgia

How To Use This Soil Survey

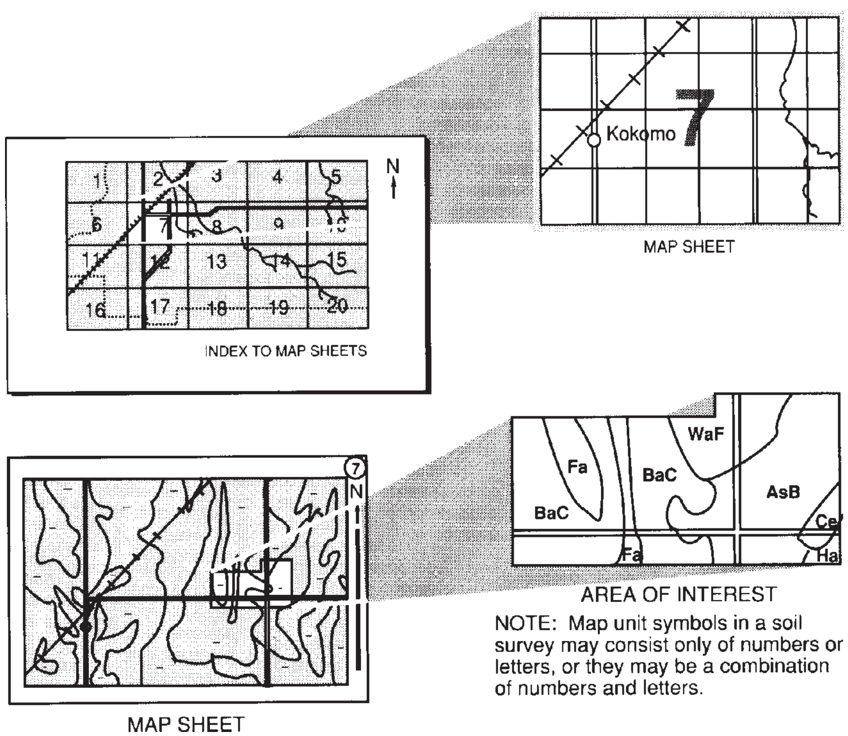
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.

Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

National Cooperative Soil Survey

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey. This survey was made cooperatively by the Natural Resources Conservation Service and the University of Georgia, College of Agricultural and Environmental Sciences, Agricultural Experiment Stations. The survey is part of the technical assistance furnished to the Fulton County Soil and Water Conservation District.

Major fieldwork for this soil survey was completed in 2003. Soil names and descriptions were approved in 2003. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 2003. The most current official data are available on the Internet at http://websoilsurvey.nrcs.usda.gov/.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

Nondiscrimination Statement

Cover Caption

Aerial view of Atlanta, Georgia, the county seat of Fulton County (Photo courtesy of Aerial Innovations of Georgia, Inc.).

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

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Foreword

Soil surveys contain information that affects land use planning in survey areas. They include predictions of soil behavior for selected land uses. The surveys highlight soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

Soil surveys are designed for many different users. Farmers, foresters, and agronomists can use the surveys to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the surveys to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the surveys to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described, and information on specific uses is given. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

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State Conservationist
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Soil Survey of
Fulton County, Georgia

By Curtis G. Marshall, Natural Resources Conservation Service

Fieldwork by Curtis G. Marshall and Daniel Johnson, Natural Resources Conservation Service

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
University of Georgia, College of Agricultural and Environmental Sciences, Agricultural Experiment Stations

FULTON COUNTY is in the north-central part of Georgia (fig. 1). It has a total area of 342,400 acres, or about 523 square miles. Atlanta is the county seat as well as the state capital.

Fulton County is entirely within the Atlanta Plateau, which is in the Southern Piedmont Major Land Resource Area (MLRA). Most of the soils on uplands are well drained and have a loamy surface layer. Soils on broad, rolling landscapes have a clayey subsoil in shades of red, dark red, or brown. Soils on dissected landscapes of narrow ridgetops and steep side slopes along the Chattahoochee River and its tributaries have a loamy subsoil in shades of red and brown.

The lowest elevation in the survey area, about 700 feet, is located along the Chattahoochee River in the southwest corner of the county. The highest elevation, about 1,280 feet, is located in the northern part of the county along the Cherokee County line.

This soil survey updates the survey of Fulton County published in 1958 (Walker and others, 1958). This soil survey provides improved interpretations and larger detailed soil maps, with up-to-date digital orthophotography, that show the soils in greater detail.

General Nature of the Survey Area

This section provides general information about the survey area. It describes settlement and population; physiography, relief, and drainage; transportation and communication; water resources; vegetation; industry; agriculture; land use; and climate.

Settlement and Population

Fulton County was created by an act of the State Legislature in 1853 from a part of DeKalb County. In 1932, Milton and Campbell Counties were merged with Fulton County by an act of the State Legislature and the vote of the people in each county. The land in the county to the south of the Chattahoochee River was acquired from the Creek Indians in 1821, and the land to the north of the river was acquired in 1835 by treaty with the Cherokee Indians.

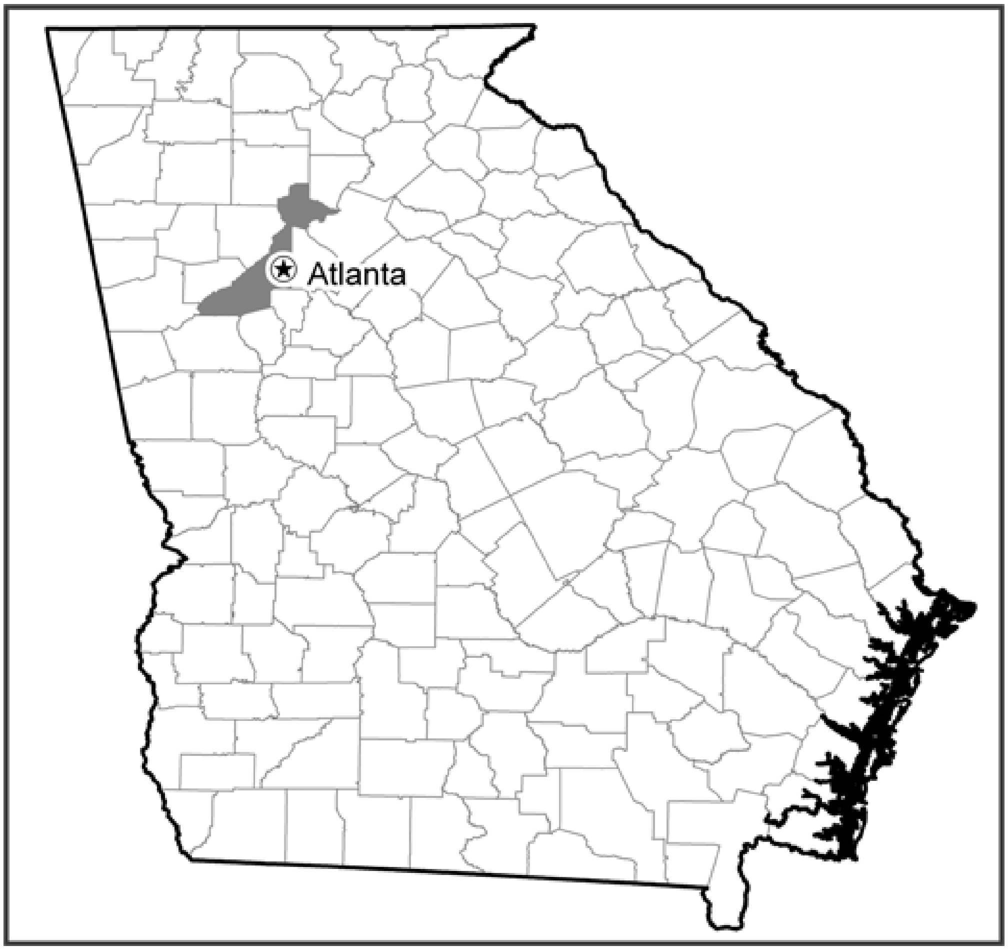

Figure 1.—Location of Fulton County in Georgia.

A group of families from Franklin County settled near the present site of Ben Hill in 1822. Other settlers probably came to the county at about this time. The first settlers were mainly from other parts of the state and were of English, Scottish, Irish, and French descent. After the Revolutionary War, a large number of people came from other states. Fulton County had a population of 473,572 in 1950 and in 2003 the population was 818,322 (Walker and others, 1958; Metro Atlanta Chamber of Commerce, 2006). The average number of persons per square mile in 1950 was 905.5 and in 2003 the average number of persons per square mile was 1,547.9. In 1950 the population of Atlanta was 331,314 and in 2003 the population of Atlanta was 434,771 (Walker and others, 1958; Metro Atlanta Chamber of Commerce, 2006).

Physiography, Relief, and Drainage

Level or nearly level flood plains occur along the Chattahoochee River and many of its tributaries. The flood plains are a few yards to nearly half a mile wide along the river and are widest in the northern part near where the river enters the county. Remnants of stream terraces lie above the flood plain at two or more levels. In many places the alluvial deposits that make up these terraces are thin and considerably dissected by drainageways.

Where the Chattahoochee River enters the county, the elevation is approximately 900 feet, and where it leaves the county, about 75 miles to the southwest, the

elevation is approximately 700 feet. The course of the stream is nearly southwesterly and is approximately parallel to the trend of the geologic structure. In the southern part of the county, the ridgetops lie at elevations ranging from 1,000 to 1,050 feet. North of Atlanta, the higher elevations range from 1,100 to more than 1,200 feet at a point about 5 miles west of Alpharetta.

The drainage of the county is characterized by a dendritic drainage pattern. The pattern is well developed throughout the uplands, and surface drainage nearly everywhere is good to excessive. Much of Fulton County is drained by the Chattahoochee and Little Rivers and the tributaries of the Flint River, which drain into the Gulf of Mexico. About 35 square miles, including the southern part of Atlanta and the adjacent area to the south, is drained by the tributaries of the South River, which flow eastward into the Atlantic Ocean. Most of the first bottoms of the Chattahoochee River are well drained, yet they are subject to overflow several times during the year. In many places along other streams, however, sediments recently washed from the surrounding uplands have filled the channels and altered drainage. As a result, many areas along small streams are swampy or semi-swampy much of the year (Walker and others, 1958).

Transportation and Communication

Atlanta is the transportation and communication center of the southeastern United States. In 1950, the third largest telegraph and telephone switching center in the world served the city. Today Atlanta is home to many wireless companies.

Atlanta is intersected by three major interstate highways. It is also home to one of the world's busiest airports. The Hartsfield-Jackson Atlanta International Airport handles more than 1,200 flights per day. Atlanta is also considered the rail center of the south. About 100 freight trains make their way in and out of Atlanta every day (Walker and others, 1958; Metro Atlanta Chamber of Commerce, 2006).

Water Resources

The main source of water in Fulton County is from the Chattahoochee River. Many watersheds supply perennial streams throughout the county. Most of the perennial streams in the county are subject to occasional flooding during heavy rains.

The water supply is generally adequate for all uses. Many manmade ponds are used for livestock, recreational activities, and limited water supplies. A shortage sometimes occurs during the summer months when homeowners typically water their lawns. Municipal water systems are constantly being improved and added to. Some golf courses in Fulton County have developed water treatment plants as an alternative source of water for irrigation.

Drilled or bored wells supply water throughout the county for domestic use and for private water systems. Drilled wells generally are more than 200 feet in depth. Water supplies from wells generally are adequate for domestic use, but supply rates may be inconsistent, even in the same general area (Metro Atlanta Chamber of Commerce, 2006).

Vegetation

The original vegetation that covered the county was predominantly oak-pine forest. The present tree growth is similar to the original, but it is less extensive. The largest forests are now confined to hilly and steep lands that border the Chattahoochee River and its larger tributaries. The most common trees in Fulton County include shortleaf pine and loblolly pine and mixed hardwoods, mainly white oak, northern red oak,

hickory, and yellow-poplar. Common plants in the undergrowth are flowering dogwood, greenbrier, wild rose, blackberry, and privet.

Abandoned fields are covered with broom sedge and other invader species, such as blackberry. Areas that are not burned-over are often gradually taken over by pine and scattered hard and softwoods (Walker and others, 1958).

Industry

Fulton County has many industries. In 1948, some of the major industries produced textiles, chemicals, iron and steel, fertilizers, food products, furniture, paper, and paper products. Also in 1948, branch factories, warehouses, or branch offices of 3,150 nationally known business organizations were located in Atlanta according the Atlanta Chamber of Commerce (Walker and others, 1958). In 2002, according to the Metro Atlanta Chamber of Commerce, the average number of business establishments was 36,465, which made Atlanta the 7th largest industrial market in the United States (Metro Atlanta Chamber of Commerce, 2006).

Agriculture

The first Europeans to visit this area found well organized Indian tribes located in permanent communities and engaged in the cultivation of maize, beans, pumpkins, melons, and many kinds of fruits. They had also developed great skill in making utensils, agricultural implements, weapons, and ornaments of copper, stone, and other materials. Agriculture was important to the early settlers and households were self-sustaining. The chief crops were corn, wheat, oats, barley, and rye, which were supplemented by garden vegetables and fruit. Cattle, hogs, and sheep were raised for meat. Wool was spun and woven for clothes.

Transportation for the early settlers was slow. Boats and pack horses carried most of the products that were traded, and the settlers frequently walked long distances to market their produce or trade their cattle. Most of the labor was performed by the family, but one family could cultivate only a few acres by the crude methods that were used. The sandy soils were preferred for agriculture, as they were most easily worked with the available implements.

Gradual development of better transportation and high prices for cotton during the early 1830s rapidly changed the self-sustaining system of agriculture into a one-crop system. Short-staple cotton soon became the primary cash crop. Clean cultivation on moderately sloping to steeply sloping land and high amounts of rainfall rapidly depleted soil fertility and accelerated erosion. When the land had deteriorated to the extent that yields were low, the farmers would abandon their fields and clear new land.

The number of farms in the county declined from 2,087 in 1950 to 328 in 2002. The average farm size in 1950 was 75.8 acres and the average farm size in 2002 was 85 acres. The larger farms in the county are predominantly along the Chattahoochee River or along some of the larger streams in the northwestern part of the county (Walker and others, 1958; NASS, 1992).

The decline in agriculture since the 1950s has allowed many of the fields that were once eroded and depleted to heal. There are many places in the county that were cultivated in 1950 that are now in timber.

In 1992, the leading agricultural commodity group in the county was nursery and greenhouse stock followed by horses and ponies. Top livestock inventory in the county were cattle and calves followed by horses and ponies (fig. 2). Top crop items in the county were forage crops followed by nursery stock (NASS, 1992).

Figure 2.—Horse farm in northern Fulton County in an area of Cecil sandy loam, 6 to 10 percent slopes, moderately eroded.

Land use

In 1950, the aggregate land in farms was 158,206 acres, or 46.2 percent of the county. The acreage in farms was divided as follows: harvested cropland, 38,364 acres; plowable pasture, 9,969 acres; woodland, 69,004 acres; and all other land use, 40,869 acres (Walker and others, 1958). In 2002, the aggregate land in farms was 27,975 acres, or 8.2 percent of the county. The acreage in farms was divided as follows: harvested cropland, 2,899 acres; plowable pasture, 2,612 acres; woodland, 11,503 acres; and all other land use, 10,961 acres (NASS, 1992). Urbanization continues to increase in Fulton County. Development of new subdivisions, warehouses, and shopping centers is a continual process.

Climate

Prepared by the Natural Resources Conservation Service, National Water and Climate Center, Portland, Oregon.

Table 1 gives data on temperature and precipitation for the survey area as recorded at the climate station at Atlanta WSO Airport, Georgia, in the period 1971 to 2000. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

Thunderstorm days, relative humidity, percent sunshine, and wind information are estimated from the First Order station in Atlanta, Georgia.

In winter, the average temperature is 44.9 degrees F and the average daily minimum temperature is 35.4 degrees. The lowest temperature on record, which

occurred on January 21, 1985, is -8 degrees. In summer, the average temperature is 78.6 degrees and the average daily maximum temperature is 87.9 degrees. The highest recorded temperature, which occurred on July 13, 1980, is 105 degrees.

Growing degree days are shown in table 1. They are equivalent to “heat units.” During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (50 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The total annual precipitation is about 50.20 inches. Of this, 36.66 inches, or 73 percent, usually falls in March through November. The growing season for most crops falls within this period. The heaviest 1-day rainfall during the period of record was 6.68 inches on October 4, 1995. Thunderstorms occur on about 49 days each year, and most occur in July.

The average seasonal snowfall is about 2.4 inches. The greatest snow depth at any one time was 8 inches on January 23, 1940. On the average, 1 day of the year has at least 1 inch of snow on the ground. The number of such days varies greatly from year to year.

The average relative humidity in midafternoon is about 56 percent. Humidity is higher at night, and the average at dawn is about 82 percent. The sun shines 64 percent of the time possible in summer and 51 percent in winter. The prevailing wind is from the northwest. Average windspeed is highest, 10.7 miles per hour, in March.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units).

Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis

of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Cecil sandy loam, 2 to 6 percent slopes, moderately eroded, is a phase of the Cecil series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes. A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Pacolet-Saw complex, 6 to 10 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Pits, quarry, is an example.

Table 4 lists the map units in this survey area. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils.

AaA—Altavista sandy loam, 0 to 2 percent slopes, rarely flooded

Map Unit Composition

Altavista and similar soils: About 92 percent

Minor Components

- Cartecay soils, which are in the lower landscape positions
- Roanoke soils, which are in depressions

Description of Altavista

Setting

Landform: Stream terraces
Slope: Nearly level
Parent material: Fine-loamy alluvium

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown sandy loam

Subsoil:
5 to 12 inches—yellowish brown sandy loam
12 to 25 inches—yellowish brown sandy clay loam
25 to 47 inches—yellowish brown sandy clay loam; yellowish brown and light gray mottles
47 to 57 inches—very pale brown sandy clay loam; brownish yellow mottles

Substratum:
57 to 74 inches—light brownish gray and light yellowish brown loam; brownish yellow mottles
74 to 80 inches—light gray sandy clay loam; brownish yellow mottles

Component Properties and Qualities

Drainage class: Moderately well drained
Depth to water table: About 1.5 to 2.5 feet; apparent

Flooding: Rare
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 2w
Hydrologic group: C

AaB—Altavista sandy loam, 2 to 6 percent slopes

Map Unit Composition

Altavista and similar soils: About 92 percent

Minor Components

- Wickham soils, which are in the higher landscape positions

Description of Altavista

Setting

Landform: Stream terraces
Slope: Gently sloping
Parent material: Fine-loamy alluvium

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown sandy loam

Subsoil:
5 to 12 inches—yellowish brown sandy loam
12 to 25 inches—yellowish brown sandy clay loam
25 to 47 inches—yellowish brown sandy clay loam; yellowish brown and light gray mottles
47 to 57 inches—very pale brown sandy clay loam; brownish yellow mottles

Substratum:
57 to 74 inches—light brownish gray and light yellowish brown loam; brownish yellow mottles
74 to 80 inches—light gray sandy clay loam; brownish yellow mottles

Component Properties and Qualities

Drainage class: Moderately well drained
Depth to water table: About 1.5 to 2.5 feet; apparent
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 2e
Hydrologic group: C

AaC—Altavista sandy loam, 6 to 10 percent slopes

Map Unit Composition

Altavista and similar soils: About 85 percent

Minor Components

- Wickham soils, which are in the higher landscape positions

Description of Altavista

Setting

Landform: Stream terraces
Slope: Moderately sloping
Parent material: Fine-loamy alluvium

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown sandy loam

Subsoil:
5 to 12 inches—yellowish brown sandy loam
12 to 25 inches—yellowish brown sandy clay loam
25 to 47 inches—yellowish brown sandy clay loam; yellowish brown and light gray mottles
47 to 57 inches—very pale brown sandy clay loam; brownish yellow mottles

Substratum:
57 to 74 inches—light brownish gray and light yellowish brown loam; brownish yellow mottles
74 to 80 inches—light gray sandy clay loam; brownish yellow mottles

Component Properties and Qualities

Drainage class: Moderately well drained
Depth to water table: About 1.5 to 2.5 feet; apparent
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: C

AgB—Appling-Hard Labor complex, 2 to 6 percent slopes

Map Unit Composition

Appling and similar soils: About 65 percent
Hard Labor and similar soils: About 30 percent

Minor Components

- A few small areas of Colfax soils, which are in landscape positions similar to those of the Appling and Hard Labor soils

Description of Appling

Setting

Landform: Hills
Position on the landform: Summits
Slope: Gently sloping
Parent material: Residuum weathered from igneous and metamorphic rock

Typical Profile

Surface layer:
0 to 6 inches—brown sandy loam

Subsoil:
6 to 10 inches—yellowish brown sandy clay loam
10 to 32 inches—yellowish brown sandy clay; yellowish red and brownish yellow mottles
32 to 41 inches—yellowish brown sandy clay; yellowish red and very pale brown mottles
41 to 51 inches—yellowish brown, strong brown, and very pale brown sandy clay loam

Substratum:
51 to 60 inches—yellowish brown, red, and light yellowish brown sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 2e
Hydrologic group: B

Description of Hard Labor

Setting

Landform: Hills
Position on the landform: Summits
Slope: Gently sloping
Parent material: Residuum weathered from igneous and metamorphic rock

Typical Profile

Surface layer:
0 to 9 inches—dark brown sandy loam

Subsoil:
9 to 15 inches—yellowish brown sandy clay loam
15 to 26 inches—yellowish brown clay loam
26 to 36 inches—yellowish brown clay loam; red mottles
36 to 50 inches—red, yellowish brown, and light brownish gray sandy clay; light brownish gray mottles

50 to 60 inches—red, yellowish brown, and very pale brown sandy clay loam; very pale brown mottles

Component Properties and Qualities

Drainage class: Moderately well drained
Depth to water table: About 2.5 to 3.3 feet; perched
Flooding: None
Ponding: None
Permeability: Slow
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 2e
Hydrologic group: B

AgC—Appling-Hard Labor complex, 6 to 10 percent slopes

Map Unit Composition

Appling and similar soils: About 85 percent
Hard Labor and similar soils: About 15 percent

Description of Appling

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Moderately sloping
Parent material: Residuum weathered from igneous and metamorphic rock

Typical Profile

Surface layer:
0 to 6 inches—brown sandy loam

Subsoil:
6 to 10 inches—yellowish brown sandy clay loam
10 to 32 inches—yellowish brown sandy clay; yellowish red and brownish yellow mottles
32 to 41 inches—yellowish brown sandy clay; yellowish red and very pale brown mottles
41 to 51 inches—yellowish brown, strong brown, and very pale brown sandy clay loam

Substratum:
51 to 60 inches—yellowish brown, red, and light yellowish brown sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

Description of Hard Labor

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Moderately sloping
Parent material: Residuum weathered from igneous and metamorphic rock

Typical Profile

Surface layer:
0 to 9 inches—dark brown sandy loam

Subsoil:
9 to 15 inches—yellowish brown sandy clay loam
15 to 26 inches—yellowish brown clay loam
26 to 36 inches—yellowish brown clay loam; red mottles
36 to 50 inches—red, yellowish brown, and light brownish gray sandy clay; light brownish gray mottles
50 to 60 inches—red, yellowish brown, and very pale brown sandy clay loam; very pale brown mottles

Component Properties and Qualities

Drainage class: Moderately well drained
Depth to water table: About 2.5 to 3.3 feet; perched
Flooding: None
Ponding: None
Permeability: Slow
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

ArE—Ashlar-Rion complex, 6 to 25 percent slopes, stony

Map Unit Composition

Ashlar and similar soils: About 45 percent
Rion and similar soils: About 40 percent

Minor Components

- Wateree and Louisburg soils, which are in landscape positions similar to those of the Ashlar and Rion soils

Description of Ashlar

Setting

Landform: Hills
Position on the landform: Summits, shoulders, and backslopes

Slope: Moderately sloping to moderately steep
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown loamy sand

Subsoil:
6 to 21 inches—yellowish brown sandy loam

Bedrock:
21 to 24 inches—soft, weathered granite and gneiss
24 inches—hard, unweathered granite and gneiss

Component Properties and Qualities

Drainage class: Excessively drained
Flooding: None
Ponding: None
Permeability: Moderately rapid
Available water capacity: Very low
Depth class: Moderately deep to bedrock

Component Interpretive Groups

Land capability class: 6e
Hydrologic group: B

Description of Rion

Setting

Landform: Hills
Position on the landform: Summits, shoulders, and backslopes
Slope: Moderately sloping to moderately steep
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 7 inches—strong brown sandy loam

Subsoil:
7 to 20 inches—yellowish red sandy clay loam
20 to 36 inches—yellowish red sandy clay loam; strong brown mottles

Substratum:
36 to 60 inches—strong brown, yellowish red, and brownish yellow sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6e
Hydrologic group: B

BaA—Buncombe loamy sand, 0 to 3 percent slopes, occasionally flooded

Map Unit Composition

Buncombe and similar soils: About 92 percent

Minor Components

- A few small areas of Toccoa soils, which are in landscape positions similar to those of the Buncombe soils

Description of Buncombe

Setting

Landform: Flood plains
Slope: Nearly level or gently sloping
Parent material: Loamy alluvium

Typical Profile

Surface layer:
0 to 10 inches—dark yellowish brown loamy sand

Substratum:
10 to 35 inches—yellowish brown sand
35 to 55 inches—yellowish brown sand; brownish yellow mottles
55 to 60 inches—dark yellowish brown loamy sand; brownish yellow mottles

Component Properties and Qualities

Drainage class: Excessively drained
Flooding: Occasional
Ponding: None
Permeability: Rapid
Available water capacity: Low
Depth class: Very deep

Component Interpretive Groups

Land capability class: 4w
Hydrologic group: A

CaA—Cartecay-Toccoa complex, 0 to 2 percent slopes, occasionally flooded

Map Unit Composition

Cartecay and similar soils: About 48 percent
Toccoa and similar soils: About 45 percent

Minor Components

- Wehadkee soils, which are in the lower and wetter areas on the flood plains

Description of Cartecay

Setting

Landform: Flood plains (fig. 3)
Slope: Nearly level

Figure 3.—A flood plain along Sandy Creek in an area of Cartecay-Toccoa complex, 0 to 2 percent slopes, occasionally flooded.

Parent material: Coarse-loamy alluvium

Typical Profile

Surface layer:
0 to 4 inches—brown sandy loam

Substratum:
4 to 13 inches—dark yellowish brown sandy loam
13 to 26 inches—light olive brown sandy loam; grayish brown and reddish brown mottles
26 to 37 inches—dark grayish brown and brown sandy loam; yellowish red mottles
37 to 50 inches—dark gray sandy loam; yellowish red mottles
50 to 58 inches—gray loamy sand
58 to 62 inches—brown and dark gray sandy loam
62 to 66 inches—dark yellowish brown sand

Component Properties and Qualities

Drainage class: Somewhat poorly drained
Depth to water table: About 0.8 to 1.7 feet; apparent

Flooding: Occasional
Ponding: None
Permeability: Moderately rapid
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3w
Hydrologic group: C

Description of Toccoa

Setting

Landform: Flood plains
Slope: Nearly level
Parent material: Coarse-loamy alluvium

Typical Profile

Surface layer:
0 to 6 inches—dark brown sandy loam

Substratum:
6 to 16 inches—reddish brown sandy loam
16 to 29 inches—reddish brown loamy sand
29 to 34 inches—reddish brown sandy loam
34 to 49 inches—brown and dark yellowish brown sandy loam; dark yellowish brown mottles
49 to 67 inches—brown sandy loam; yellowish red mottles
67 to 75 inches—brown and yellowish red loamy sand
75 to 85 inches—dark grayish brown sand; red mottles

Component Properties and Qualities

Drainage class: Moderately well drained
Depth to water table: About 2.5 to 5.0 feet; apparent
Flooding: Occasional
Ponding: None
Permeability: Moderately rapid
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 2w
Hydrologic group: B

CeB2—Cecil sandy loam, 2 to 6 percent slopes, moderately eroded

Map Unit Composition

Cecil and similar soils: About 95 percent

Minor Components

- Saw soils, which are in landscape positions similar to those of the Cecil soil

Description of Cecil

Setting

Landform: Hills
Position on the landform: Summits
Slope: Gently sloping
Parent material: Residuum weathered from igneous and metamorphic rock

Typical Profile

Surface layer:
0 to 3 inches—brown sandy loam

Subsoil:
3 to 9 inches—red and brown sandy clay loam
9 to 26 inches—red clay
26 to 31 inches—red clay; light yellowish brown mottles
31 to 50 inches—red clay loam
50 to 60 inches—red sandy clay loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 2e
Hydrologic group: B

CeC2—Cecil sandy loam, 6 to 10 percent slopes, moderately eroded

Map Unit Composition

Cecil and similar soils: About 95 percent

Minor Components

- Saw soils, which are in landscape positions similar to those of the Cecil soil

Description of Cecil

Setting

Landform: Hills
Position on the landform: Shoulders
Slope: Moderately sloping
Parent material: Residuum weathered from igneous and metamorphic rock

Typical Profile

Surface layer:
0 to 3 inches—brown sandy loam

Subsoil:
3 to 9 inches—red and brown sandy clay loam
9 to 26 inches—red clay
26 to 31 inches—red clay; light yellowish brown mottles
31 to 50 inches—red clay loam
50 to 60 inches—red sandy clay loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

CpA—Congaree sandy loam, 0 to 2 percent slopes, occasionally flooded

Map Unit Composition

Congaree and similar soils: About 100 percent

Description of Congaree

Setting

Landform: Flood plains
Slope: Nearly level
Parent material: Fine-loamy alluvium

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown sandy loam

Substratum:
8 to 18 inches—strong brown loam
18 to 36 inches—strong brown sandy clay loam
36 to 50 inches—yellowish brown and strong brown loam; yellowish red mottles
50 to 65 inches—yellowish red and yellowish brown loam
65 to 74 inches—yellowish red and strong brown sandy loam

Component Properties and Qualities

Drainage class: Well drained
Depth to water table: About 2.5 to 4.0 feet; apparent
Flooding: Occasional
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 2w
Hydrologic group: B

CrA—Congaree-Cartecay complex, 0 to 2 percent slopes, occasionally flooded

Map Unit Composition

Congaree and similar soils: About 75 percent
Cartecay and similar soils: About 23 percent

Description of Congaree

Setting

Landform: Flood plains
Slope: Nearly level
Parent material: Fine-loamy alluvium

Typical Profile

Surface layer:
0 to 8 inches—dark yellowish brown sandy loam

Substratum:
8 to 18 inches—strong brown loam
18 to 36 inches—strong brown sandy clay loam
36 to 50 inches—yellowish brown and strong brown loam; yellowish red mottles
50 to 65 inches—yellowish red and yellowish brown loam
65 to 74 inches—yellowish red and strong brown sandy loam

Component Properties and Qualities

Drainage class: Well drained
Depth to water table: About 2.5 to 4.0 feet; apparent
Flooding: Occasional
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 2w
Hydrologic group: B

Description of Cartecay

Setting

Landform: Flood plains
Slope: Nearly level
Parent material: Coarse-loamy alluvium

Typical Profile

Surface layer:
0 to 4 inches—brown sandy loam

Substratum:
4 to 13 inches—dark yellowish brown sandy loam
13 to 26 inches—light olive brown sandy loam; grayish brown and reddish brown mottles
26 to 37 inches—dark grayish brown and brown sandy loam; yellowish red mottles
37 to 50 inches—dark gray sandy loam; yellowish red mottles
50 to 58 inches—gray loamy sand
58 to 62 inches—brown and dark gray sandy loam
62 to 66 inches—dark yellowish brown sand

Component Properties and Qualities

Drainage class: Somewhat poorly drained
Depth to water table: About 0.8 to 1.7 feet; apparent
Flooding: Occasional
Ponding: None
Permeability: Moderately rapid
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3w
Hydrologic group: C

DAM—Dam

Map Unit Composition

Dam: About 100 percent

Description of Dam

This map unit consists of earthen dams.

EnC—Enon-Wynott complex, 6 to 10 percent slopes, bouldery

Map Unit Composition

Enon and similar soils: About 52 percent
Wynott and similar soils: About 40 percent

Minor Components

- Wilkes soils, which are in landscape positions similar to those of the Enon and Wynott soils

Description of Enon

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Moderately sloping
Parent material: Residuum weathered from amphibolite

Typical Profile

Surface layer:
0 to 4 inches—very dark grayish brown very gravelly sandy loam

Subsoil:
4 to 6 inches—light olive brown gravelly sandy clay loam
6 to 16 inches—dark yellowish brown clay
16 to 27 inches—dark yellowish brown and olive brown sandy clay loam; black mottles

Substratum:
27 to 75 inches—dark yellowish brown, olive brown, olive, and dark greenish gray sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Slow
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6s
Hydrologic group: C

Description of Wynott

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Moderately sloping
Parent material: Residuum weathered from amphibolite

Typical Profile

Surface layer:
0 to 7 inches—very dark grayish brown sandy loam

Subsoil:
7 to 20 inches—yellowish brown and light olive brown sandy clay

Substratum:
20 to 30 inches—light yellowish brown and yellowish brown sand

Bedrock:
30 to 42 inches—soft, weathered amphibolite
42 inches—hard, unweathered amphibolite

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Slow
Available water capacity: Low
Depth class: Moderately deep to bedrock

Component Interpretive Groups

Land capability class: 6s
Hydrologic group: C

GaC—Grover-Mountain Park complex, 2 to 10 percent slopes, stony

Map Unit Composition

Grover and similar soils: About 50 percent
Mountain Park and similar soils: About 50 percent

Description of Grover

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Gently sloping or moderately sloping
Parent material: Residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown gravelly sandy loam

Subsurface layer:
4 to 11 inches—yellowish brown gravelly sandy loam

Subsoil:
11 to 14 inches—yellowish red and strong brown sandy loam
14 to 25 inches—red and strong brown sandy clay loam
25 to 31 inches—red sandy loam

Substratum:
31 to 80 inches—yellowish red, red, strong brown, and dark grayish brown loamy sand

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

Description of Mountain Park

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Gently sloping or moderately sloping
Parent material: Residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown gravelly sandy loam

Subsoil:
4 to 10 inches—brown gravelly sandy loam
10 to 23 inches—brown sandy clay loam
23 to 32 inches—yellowish red sandy loam

Bedrock:
32 to 46 inches—soft, weathered mica schist

Substratum:
46 to 55 inches—strong brown sandy loam

Bedrock:
55 to 65 inches—soft, weathered mica schist

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Low
Depth class: Moderately deep to bedrock

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

GaE—Grover-Mountain Park complex, 10 to 20 percent slopes, stony

Map Unit Composition

Grover and similar soils: About 50 percent
Mountain Park and similar soils: About 40 percent

Minor Components

- Ashlar and Sweetapple soils, which are in landscape positions similar to those of the Grover and Mountain Park soils

Description of Grover

Setting

Landform: Hills (fig. 4)
Position on the landform: Shoulders and backslopes
Slope: Strongly sloping or moderately steep
Parent material: Residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown gravelly sandy loam

Subsurface layer:
4 to 11 inches—yellowish brown gravelly sandy loam

Figure 4.—A mixed hardwood forest on a hill in an area of Grover-Mountain Park complex, 10 to 20 percent slopes, stony.

Subsoil:
11 to 14 inches—yellowish red and strong brown sandy loam
14 to 25 inches—red and strong brown sandy clay loam
25 to 31 inches—red sandy loam

Substratum:
31 to 80 inches—yellowish red, red, strong brown, and dark grayish brown loamy sand

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6e
Hydrologic group: B

Description of Mountain Park

Setting

Landform: Hills
Position on the landform: Shoulders and backslopes

Slope: Strongly sloping or moderately steep
Parent material: Residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown gravelly sandy loam

Subsoil:
4 to 10 inches—brown gravelly sandy loam
10 to 23 inches—brown sandy clay loam
23 to 32 inches—yellowish red sandy loam

Bedrock:
32 to 46 inches—soft, weathered mica schist

Substratum:
46 to 55 inches—strong brown sandy loam

Bedrock:
55 to 65 inches—soft, weathered mica schist

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Low
Depth class: Moderately deep to bedrock

Component Interpretive Groups

Land capability class: 6e
Hydrologic group: B

GaF—Grover-Mountain Park complex, 20 to 60 percent slopes, stony

Map Unit Composition

Grover and similar soils: About 55 percent
Mountain Park and similar soils: About 30 percent

Minor Components

- Lousiburg and Ashlar soils, which are in landscape positions similar to those of the Grover and Mountain Park soils

Description of Grover

Setting

Landform: Hills
Position on the landform: Backslopes
Slope: Moderately steep to very steep
Parent material: Residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown gravelly sandy loam

Subsurface layer:
4 to 11 inches—yellowish brown gravelly sandy loam

Subsoil:
11 to 14 inches—yellowish red and strong brown sandy loam
14 to 25 inches—red and strong brown sandy clay loam
25 to 31 inches—red sandy loam

Substratum:
31 to 80 inches—yellowish red, red, strong brown, and dark grayish brown loamy sand

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 7e
Hydrologic group: B

Description of Mountain Park

Setting

Landform: Hills
Position on the landform: Backslopes
Slope: Moderately steep to very steep
Parent material: Residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown gravelly sandy loam

Subsoil:
4 to 10 inches—brown gravelly sandy loam
10 to 23 inches—brown sandy clay loam
23 to 32 inches—yellowish red sandy loam

Bedrock:
32 to 46 inches—soft, weathered mica schist

Substratum:
46 to 55 inches—strong brown sandy loam

Bedrock:
55 to 65 inches—soft, weathered mica schist

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Low
Depth class: Moderately deep to bedrock

Component Interpretive Groups

Land capability class: 7e
Hydrologic group: B

HbB—Hiwassee sandy loam, 2 to 6 percent slopes

Map Unit Composition

Hiwassee and similar soils: About 100 percent

Description of Hiwassee

Setting

Landform: High terraces
Slope: Gently sloping
Parent material: Old alluvium

Typical Profile

Surface layer:
0 to 6 inches—dark reddish brown sandy loam

Subsoil:
6 to 22 inches—dark red sandy clay
22 to 35 inches—dark red clay loam
35 to 59 inches—dark red sandy clay loam
59 to 80 inches—red sandy clay loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

HbC—Hiwassee sandy loam, 6 to 10 percent slopes

Map Unit Composition

Hiwassee and similar soils: About 90 percent

Minor Components

- Altavista soils, which are in the lower landscape positions

Description of Hiwassee

Setting

Landform: High terraces
Slope: Moderately sloping

Parent material: Old alluvium

Typical Profile

Surface layer:
0 to 6 inches—dark reddish brown sandy loam

Subsoil:
6 to 22 inches—dark red sandy clay
22 to 35 inches—dark red clay loam
35 to 59 inches—dark red sandy clay loam
59 to 80 inches—red sandy clay loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

LaD2—Lloyd-Gwinnett complex, 6 to 15 percent slopes, moderately eroded

Map Unit Composition

Lloyd and similar soils: About 75 percent
Gwinnett and similar soils: About 25 percent

Description of Lloyd

Setting

Landform: Hills
Position on the landform: Shoulders and backslopes
Slope: Moderately sloping or strongly sloping
Parent material: Residuum weathered from igneous and metamorphic rock and/or residuum weathered from amphibolite

Typical Profile

Surface layer:
0 to 4 inches—dark reddish brown sandy loam

Subsoil:
4 to 25 inches—dark red clay loam
25 to 40 inches—dark reddish brown sandy clay loam; black mottles

Substratum:
40 to 48 inches—reddish brown sandy loam; black mottles
48 to 59 inches—brown loamy fine sand; black mottles
59 to 67 inches—reddish brown sandy loam
67 to 80 inches—yellowish red sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6e
Hydrologic group: B

Description of Gwinnett

Setting

Landform: Hills
Position on the landform: Shoulders and backslopes
Slope: Moderately sloping or strongly sloping
Parent material: Residuum weathered from igneous and metamorphic rock and/or residuum weathered from amphibolite

Typical Profile

Surface layer:
0 to 5 inches—dark reddish brown sandy loam

Subsoil:
5 to 22 inches—dark red clay
22 to 38 inches—dark red clay loam

Substratum:
38 to 41 inches—yellowish red and red sandy clay loam; reddish yellow mottles

Bedrock:
41 to 60 inches—soft, weathered amphibolite and/or igneous and metamorphic rock

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Low
Depth class: Deep to bedrock

Component Interpretive Groups

Land capability class: 6e
Hydrologic group: B

MdB2—Madison-Bethlehem complex, 2 to 6 percent slopes, moderately eroded

Map Unit Composition

Madison and similar soils: About 60 percent
Bethlehem and similar soils: About 30 percent

Minor Components

- Saw soils, which are in landscape positions similar to those of the Madison and Bethlehem soils

Description of Madison

Setting

Landform: Hills
Position on the landform: Summits
Slope: Gently sloping
Parent material: Residuum weathered from igneous and metamorphic rock and/or residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 5 inches—yellowish brown sandy loam

Subsoil:
5 to 10 inches—yellowish red sandy clay
10 to 17 inches—red clay
17 to 24 inches—red sandy clay
24 to 38 inches—red sandy clay loam; strong brown and yellow mottles

Substratum:
38 to 50 inches—yellowish red, brown, and reddish yellow sandy clay loam
50 to 60 inches—brown, reddish yellow, and yellowish red sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 2e
Hydrologic group: B

Description of Bethlehem

Setting

Landform: Hills
Position on the landform: Summits
Slope: Gently sloping
Parent material: Residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 5 inches—strong brown sandy loam

Subsoil:
5 to 27 inches—red clay loam
27 to 30 inches—red clay loam and sandy loam

Bedrock:
30 to 56 inches—soft, weathered mica schist

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Low
Depth class: Moderately deep to bedrock

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

MdC2—Madison-Bethlehem complex, 6 to 10 percent slopes, moderately eroded

Map Unit Composition

Madison and similar soils: About 50 percent
Bethlehem and similar soils: About 35 percent

Minor Components

- Saw and Cataula soils, which are in landscape positions similar to those of the Madison and Bethlehem soils

Description of Madison

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Moderately sloping
Parent material: Residuum weathered from igneous and metamorphic rock and/or residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 5 inches—yellowish brown sandy loam

Subsoil:
5 to 10 inches—yellowish red sandy clay
10 to 17 inches—red clay
17 to 24 inches—red sandy clay
24 to 38 inches—red sandy clay loam; strong brown and yellow mottles

Substratum:
38 to 50 inches—yellowish red, brown, and reddish yellow sandy clay loam
50 to 60 inches—brown, reddish yellow, and yellowish red sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None

Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

Description of Bethlehem

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Moderately sloping
Parent material: Residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 5 inches—strong brown sandy loam

Subsoil:
5 to 27 inches—red clay loam
27 to 30 inches—red clay loam and sandy loam

Bedrock:
30 to 56 inches—soft, weathered mica schist

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Low
Depth class: Moderately deep to bedrock

Component Interpretive Groups

Land capability class: 4e
Hydrologic group: B

PaB2—Pacolet sandy loam, 2 to 6 percent slopes, moderately eroded

Map Unit Composition

Pacolet and similar soils: About 95 percent

Minor Components

- Hard Labor soils, which are in the lower landscape positions

Description of Pacolet

Setting

Landform: Hills
Position on the landform: Summits

Slope: Gently sloping
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 5 inches—brown sandy loam

Subsoil:
5 to 10 inches—yellowish red sandy clay loam
10 to 18 inches—red clay
18 to 26 inches—red clay
26 to 36 inches—red sandy clay loam; yellowish brown and strong brown mottles

Substratum:
36 to 46 inches—yellowish red, strong brown, and yellowish brown sandy loam
46 to 58 inches—yellowish red, yellowish brown, and strong brown sandy loam
58 to 66 inches—weak red, red, and yellowish brown sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 2e
Hydrologic group: B

PaD2—Pacolet sandy loam, 10 to 15 percent slopes, moderately eroded

Map Unit Composition

Pacolet and similar soils: About 95 percent

Minor Components

- Louisburg soils, which are in landscape positions similar to those of the Pacolet soil

Description of Pacolet

Setting

Landform: Hills
Position on the landform: Shoulders and backslopes
Slope: Strongly sloping
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 5 inches—brown sandy loam

Subsoil:
5 to 10 inches—yellowish red sandy clay loam

10 to 18 inches—red clay
18 to 26 inches—red clay
26 to 36 inches—red sandy clay loam; yellowish brown and strong brown mottles

Substratum:
36 to 46 inches—yellowish red, strong brown, and yellowish brown sandy loam
46 to 58 inches—yellowish red, yellowish brown, and strong brown sandy loam
58 to 66 inches—weak red, red, and yellowish brown sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 4e
Hydrologic group: B

PaE2—Pacolet sandy loam, 15 to 25 percent slopes, moderately eroded

Map Unit Composition

Pacolet and similar soils: About 85 percent

Minor Components

- Saw and Louisburg soils, which are in landscape positions similar to those of the Pacolet soil

Description of Pacolet

Setting

Landform: Hills
Position on the landform: Backslopes
Slope: Moderately steep
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 5 inches—brown sandy loam

Subsoil:
5 to 10 inches—yellowish red sandy clay loam
10 to 18 inches—red clay
18 to 26 inches—red clay
26 to 36 inches—red sandy clay loam; yellowish brown and strong brown mottles

Substratum:
36 to 46 inches—yellowish red, strong brown, and yellowish brown sandy loam
46 to 58 inches—yellowish red, yellowish brown, and strong brown sandy loam
58 to 66 inches—weak red, red, and yellowish brown sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6e
Hydrologic group: B

PgC2—Pacolet-Saw complex, 6 to 10 percent slopes, moderately eroded, bouldery

Map Unit Composition

Pacolet and similar soils: About 75 percent
Saw and similar soils: About 25 percent

Description of Pacolet

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Moderately sloping
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 5 inches—brown sandy loam

Subsoil:
5 to 10 inches—yellowish red sandy clay loam
10 to 18 inches—red clay
18 to 26 inches—red clay
26 to 36 inches—red sandy clay loam; yellowish brown and strong brown mottles

Substratum:
36 to 46 inches—yellowish red, strong brown, and yellowish brown sandy loam
46 to 58 inches—yellowish red, yellowish brown, and strong brown sandy loam
58 to 66 inches—weak red, red, and yellowish brown sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6s
Hydrologic group: B

Description of Saw

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Moderately sloping
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 5 inches—dark yellowish brown sandy loam

Subsoil:
5 to 17 inches—red sandy clay
17 to 22 inches—red sandy clay loam

Bedrock:
22 inches—hard, unweathered granite and gneiss

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Very low
Depth class: Moderately deep to bedrock

Component Interpretive Groups

Land capability class: 6s
Hydrologic group: B

Pt—Pits, quarry

Map Unit Composition

Pits: About 100 percent

Description of Pits

Areas of large quarries or pits from which soil or soil parent materials have been removed. They are variable in size and depth. Some areas are ponded.

ReD—Rion sandy loam, 10 to 15 percent slopes

Map Unit Composition

Rion and similar soils: About 85 percent

Minor Components

- Mountain Park and Rawlings soils, which are in landscape positions similar to those of the Rion soil

Description of Rion

Setting

Landform: Hills
Position on the landform: Shoulders and backslopes

Slope: Strongly sloping
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 7 inches—strong brown sandy loam

Subsoil:
7 to 20 inches—yellowish red sandy clay loam
20 to 36 inches—yellowish red sandy clay loam; strong brown mottles

Substratum:
36 to 60 inches—strong brown, yellowish red, and brownish yellow sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 4e
Hydrologic group: B

ReE—Rion sandy loam, 15 to 25 percent slopes

Map Unit Composition

Rion and similar soils: About 85 percent

Minor Components

- Mountain Park and Rawlings soil, which are in landscape positions similar to those of the Rion soil

Description of Rion

Setting

Landform: Hills
Position on the landform: Backslopes
Slope: Moderately steep
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 7 inches—strong brown sandy loam

Subsoil:
7 to 20 inches—yellowish red sandy clay loam
20 to 36 inches—yellowish red sandy clay loam; strong brown mottles

Substratum:
36 to 60 inches—strong brown, yellowish red, and brownish yellow sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6e
Hydrologic group: B

RoE—Rion-Louisburg complex, 10 to 20 percent slopes, bouldery

Map Unit Composition

Rion and similar soils: About 65 percent
Louisburg and similar soils: About 25 percent

Minor Components

- Mountain Park and Ashlar soils, which are in landscape positions similar to those of the Rion and Louisburg soils

Description of Rion

Setting

Landform: Hills
Position on the landform: Shoulders and backslopes
Slope: Strongly sloping or moderately steep
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 7 inches—strong brown sandy loam

Subsoil:
7 to 20 inches—yellowish red sandy clay loam
20 to 36 inches—yellowish red sandy clay loam; strong brown mottles

Substratum:
36 to 60 inches—strong brown, yellowish red, and brownish yellow sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6s
Hydrologic group: B

Description of Louisburg

Setting

Landform: Hills
Position on the landform: Shoulders and backslopes
Slope: Strongly sloping or moderately steep
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 3 inches—olive brown sandy loam

Subsoil:
3 to 14 inches—light olive brown loamy sand
14 to 26 inches—yellowish brown sandy loam
26 to 38 inches—yellowish brown and light gray coarse sandy loam

Substratum:
38 to 50 inches—strong brown, light gray, and brownish yellow loamy sand
50 to 71 inches—very dark grayish brown and yellow loamy sand

Bedrock:
71 to 80 inches—soft, weathered granite

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Rapid
Available water capacity: Low
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6s
Hydrologic group: B

RoF—Rion-Louisburg complex, 20 to 35 percent slopes, bouldery

Map Unit Composition

Rion and similar soils: About 70 percent
Louisburg and similar soils: About 25 percent

Minor Components

- Ashlar soils, which are in landscape positions similar to those of the Rion and Louisburg soils

Description of Rion

Setting

Landform: Hills
Position on the landform: Backslopes

Slope: Moderately steep or steep
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 7 inches—strong brown sandy loam

Subsoil:
7 to 20 inches—yellowish red sandy clay loam
20 to 36 inches—yellowish red sandy clay loam; strong brown mottles

Substratum:
36 to 60 inches—strong brown, yellowish red, and brownish yellow sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 7s
Hydrologic group: B

Description of Louisburg

Setting

Landform: Hills
Position on the landform: Backslopes
Slope: Moderately steep or steep
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 3 inches—olive brown sandy loam

Subsoil:
3 to 14 inches—light olive brown loamy sand
14 to 26 inches—yellowish brown sandy loam
26 to 38 inches—yellowish brown and light gray coarse sandy loam

Substratum:
38 to 50 inches—strong brown, light gray, and brownish yellow loamy sand
50 to 71 inches—very dark grayish brown and yellow loamy sand

Bedrock:
71 to 80 inches—soft, weathered granite

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Rapid

Available water capacity: Low
Depth class: Very deep

Component Interpretive Groups

Land capability class: 7s
Hydrologic group: B

Ua—Udorthents, 0 to 10 percent slopes

Map Unit Composition

Udorthents and similar soils: About 100 percent

Description of Udorthents

Udorthents are areas that have been disturbed by cutting, filling, reshaping, dredging, or erosion. Soil properties, such as texture, depth, permeability, and available water capacity, are highly variable.

Ub—Urban land

Map Unit Composition

Urban land: About 100 percent

Description of Urban land

Urban land consists of areas that have been altered by cutting, filling, and shaping. Schools, parking lots, streets, commercial buildings, and residential dwellings are located in these areas.

UcC—Urban land-Altavista complex, 2 to 10 percent slopes

Map Unit Composition

Urban land: About 70 percent
Altavista and similar soils: About 30 percent

Description of Urban land

Urban land consists of areas that have been altered by cutting, filling, and shaping. Schools, parking lots, streets, commercial buildings, and residential dwellings are located in these areas.

Description of Altavista

Setting

Landform: Stream terraces
Slope: Gently sloping or moderately sloping
Parent material: Fine-loamy alluvium

Typical Profile

Surface layer:
0 to 5 inches—dark grayish brown sandy loam

Subsoil:
5 to 12 inches—yellowish brown sandy loam
12 to 25 inches—yellowish brown sandy clay loam
25 to 47 inches—yellowish brown sandy clay loam; yellowish brown and light gray mottles
47 to 57 inches—very pale brown sandy clay loam; brownish yellow mottles

Substratum:
57 to 74 inches—light brownish gray and light yellowish brown loam; brownish yellow mottles
74 to 80 inches—light gray sandy clay loam; brownish yellow mottles

Component Properties and Qualities

Drainage class: Moderately well drained
Depth to water table: About 1.5 to 2.5 feet; apparent
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 2e
Hydrologic group: C

UdC—Urban land-Appling-Hard Labor complex, 2 to 10 percent slopes

Map Unit Composition

Urban land: About 60 percent
Appling and similar soils: About 25 percent
Hard Labor and similar soils: About 15 percent

Description of Urban land

Urban land consists of areas that have been altered by cutting, filling, and shaping. Schools, parking lots, streets, commercial buildings, and residential dwellings are located in these areas.

Description of Appling

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Gently sloping or moderately sloping
Parent material: Residuum weathered from igneous and metamorphic rock

Typical Profile

Surface layer:
0 to 6 inches—brown sandy loam

Subsoil:
6 to 10 inches—yellowish brown sandy clay loam

10 to 32 inches—yellowish brown sandy clay; yellowish red and brownish yellow mottles
32 to 41 inches—yellowish brown sandy clay; yellowish red and very pale brown mottles
41 to 51 inches—yellowish brown, strong brown, and very pale brown sandy clay loam

Substratum:
51 to 60 inches—yellowish brown, red, and light yellowish brown sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

Description of Hard Labor

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Gently sloping or moderately sloping
Parent material: Residuum weathered from igneous and metamorphic rock

Typical Profile

Surface layer:
0 to 9 inches—dark brown sandy loam

Subsoil:
9 to 15 inches—yellowish brown sandy clay loam
15 to 26 inches—yellowish brown clay loam
26 to 36 inches—yellowish brown clay loam; red mottles
36 to 50 inches—red, yellowish brown, and light brownish gray sandy clay; light brownish gray mottles
50 to 60 inches—red, yellowish brown, and very pale brown sandy clay loam; very pale brown mottles

Component Properties and Qualities

Drainage class: Moderately well drained
Depth to water table: About 2.5 to 3.3 feet; perched
Flooding: None
Ponding: None
Permeability: Slow
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

UeE—Urban land-Ashlar-Rion complex, 10 to 25 percent slopes, stony

Map Unit Composition

Urban land: About 41 percent
Ashlar and similar soils: About 20 percent
Rion and similar soils: About 19 percent

Description of Urban land

Urban land consists of areas that have been altered by cutting, filling, and shaping. Schools, parking lots, streets, commercial buildings, and residential dwellings are located in these areas.

Description of Ashlar

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Strongly sloping or moderately steep
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 6 inches—dark yellowish brown loamy sand

Subsoil:
6 to 21 inches—yellowish brown sandy loam

Bedrock:
21 to 24 inches—soft, weathered granite and gneiss
24 inches—hard, unweathered granite and gneiss

Component Properties and Qualities

Drainage class: Excessively drained
Flooding: None
Ponding: None
Permeability: Moderately rapid
Available water capacity: Very low
Depth class: Moderately deep to bedrock

Component Interpretive Groups

Land capability class: 6e
Hydrologic group: B

Description of Rion

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Strongly sloping or moderately steep
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 7 inches—strong brown sandy loam

Subsoil:
7 to 20 inches—yellowish red sandy clay loam
20 to 36 inches—yellowish red sandy clay loam; strong brown mottles

Substratum:
36 to 60 inches—strong brown, yellowish red, and brownish yellow sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6e
Hydrologic group: B

UfC2—Urban land-Cecil complex, 2 to 10 percent slopes, moderately eroded

Map Unit Composition

Urban land: About 70 percent
Cecil and similar soils: About 30 percent

Description of Urban land

Urban land consists of areas that have been altered by cutting, filling, and shaping. Schools, parking lots, streets, commercial buildings, and residential dwellings are located in these areas.

Description of Cecil

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Gently sloping or moderately sloping
Parent material: Residuum weathered from igneous and metamorphic rock

Typical Profile

Surface layer:
0 to 3 inches—brown sandy loam

Subsoil:
3 to 9 inches—red and brown sandy clay loam
9 to 26 inches—red clay
26 to 31 inches—red clay; light yellowish brown mottles
31 to 50 inches—red clay loam
50 to 60 inches—red sandy clay loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None

Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

UgC—Urban land-Grover-Mountain Park complex, 2 to 10 percent slopes, stony

Map Unit Composition

Urban land: About 60 percent
Grover and similar soils: About 25 percent
Mountain Park and similar soils: About 15 percent

Description of Urban land

Urban land consists of areas that have been altered by cutting, filling, and shaping. Schools, parking lots, streets, commercial buildings, and residential dwellings are located in these areas.

Description of Grover

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Gently sloping or moderately sloping
Parent material: Residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown gravelly sandy loam

Subsurface layer:
4 to 11 inches—yellowish brown gravelly sandy loam

Subsoil:
11 to 14 inches—yellowish red and strong brown sandy loam
14 to 25 inches—red and strong brown sandy clay loam
25 to 31 inches—red sandy loam

Substratum:
31 to 80 inches—yellowish red, red, strong brown, and dark grayish brown loamy sand

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

Description of Mountain Park

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Gently sloping or moderately sloping
Parent material: Residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown gravelly sandy loam

Subsoil:
4 to 10 inches—brown gravelly sandy loam
10 to 23 inches—brown sandy clay loam
23 to 32 inches—yellowish red sandy loam

Bedrock:
32 to 46 inches—soft, weathered mica schist

Substratum:
46 to 55 inches—strong brown sandy loam

Bedrock:
55 to 65 inches—soft, weathered mica schist

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Low
Depth class: Moderately deep to bedrock

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

UgE—Urban land-Grover-Mountain Park complex, 10 to 25 percent slopes, stony

Map Unit Composition

Urban land: About 60 percent
Grover and similar soils: About 25 percent
Mountain Park and similar soils: About 15 percent

Description of Urban land

Urban land consists of areas that have been altered by cutting, filling, and shaping. Schools, parking lots, streets, commercial buildings, and residential dwellings are located in these areas.

Description of Grover

Setting

Landform: Hills
Position on the landform: Shoulders and backslopes
Slope: Strongly sloping or moderately steep
Parent material: Residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown gravelly sandy loam

Subsurface layer:
4 to 11 inches—yellowish brown gravelly sandy loam

Subsoil:
11 to 14 inches—yellowish red and strong brown sandy loam
14 to 25 inches—red and strong brown sandy clay loam
25 to 31 inches—red sandy loam

Substratum:
31 to 80 inches—yellowish red, red, strong brown, and dark grayish brown loamy sand

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6e
Hydrologic group: B

Description of Mountain Park

Setting

Landform: Hills
Position on the landform: Shoulders and backslopes
Slope: Strongly sloping or moderately steep
Parent material: Residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 4 inches—dark yellowish brown gravelly sandy loam

Subsoil:
4 to 10 inches—brown gravelly sandy loam
10 to 23 inches—brown sandy clay loam
23 to 32 inches—yellowish red sandy loam

Bedrock:
32 to 46 inches—soft, weathered mica schist

Substratum:
46 to 55 inches—strong brown sandy loam

Bedrock:
55 to 65 inches—soft, weathered mica schist

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Low
Depth class: Moderately deep to bedrock

Component Interpretive Groups

Land capability class: 6e
Hydrologic group: B

UmC2—Urban land-Madison-Bethlehem complex, 2 to 10 percent slopes, moderately eroded

Map Unit Composition

Urban land: About 65 percent
Madison and similar soils: About 20 percent
Bethlehem and similar soils: About 15 percent

Description of Urban land

Urban land consists of areas that have been altered by cutting, filling, and shaping. Schools, parking lots, streets, commercial buildings, and residential dwellings are located in these areas.

Description of Madison

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Gently sloping or moderately sloping
Parent material: Residuum weathered from igneous and metamorphic rock and/or residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 5 inches—yellowish brown sandy loam

Subsoil:
5 to 10 inches—yellowish red sandy clay
10 to 17 inches—red clay
17 to 24 inches—red sandy clay
24 to 38 inches—red sandy clay loam; strong brown and yellow mottles

Substratum:
38 to 50 inches—yellowish red, brown, and reddish yellow sandy clay loam
50 to 60 inches—brown, reddish yellow, and yellowish red sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None

Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

Description of Bethlehem

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Gently sloping or moderately sloping
Parent material: Residuum weathered from mica schist

Typical Profile

Surface layer:
0 to 5 inches—strong brown sandy loam

Subsoil:
5 to 27 inches—red clay loam
27 to 30 inches—red clay loam and sandy loam

Bedrock:
30 to 56 inches—soft, weathered mica schist

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Low
Depth class: Moderately deep to bedrock

Component Interpretive Groups

Land capability class: 3e
Hydrologic group: B

UpC2—Urban land-Pacolet-Saw complex, 2 to 10 percent slopes, moderately eroded, bouldery

Map Unit Composition

Urban land: About 60 percent
Pacolet and similar soils: About 21 percent
Saw and similar soils: About 19 percent

Description of Urban land

Urban land consists of areas that have been altered by cutting, filling, and shaping. Schools, parking lots, streets, commercial buildings, and residential dwellings are located in these areas.

Description of Pacolet

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Gently sloping or moderately sloping
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 5 inches—brown sandy loam

Subsoil:
5 to 10 inches—yellowish red sandy clay loam
10 to 18 inches—red clay
18 to 26 inches—red clay
26 to 36 inches—red sandy clay loam; yellowish brown and strong brown mottles

Substratum:
36 to 46 inches—yellowish red, strong brown, and yellowish brown sandy loam
46 to 58 inches—yellowish red, yellowish brown, and strong brown sandy loam
58 to 66 inches—weak red, red, and yellowish brown sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6s
Hydrologic group: B

Description of Saw

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Gently sloping or moderately sloping
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 5 inches—dark yellowish brown sandy loam

Subsoil:
5 to 17 inches—red sandy clay
17 to 22 inches—red sandy clay loam

Bedrock:
22 inches—hard, unweathered granite and gneiss

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Very low
Depth class: Moderately deep to bedrock

Component Interpretive Groups

Land capability class: 6s
Hydrologic group: B

UrE—Urban land-Rion complex, 10 to 25 percent slopes

Map Unit Composition

Urban land: About 65 percent
Rion and similar soils: About 35 percent

Description of Urban land

Urban land consists of areas that have been altered by cutting, filling, and shaping. Schools, parking lots, streets, commercial buildings, and residential dwellings are located in these areas.

Description of Rion

Setting

Landform: Hills
Position on the landform: Shoulders and backslopes
Slope: Strongly sloping or moderately steep
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 7 inches—strong brown sandy loam

Subsoil:
7 to 20 inches—yellowish red sandy clay loam
20 to 36 inches—yellowish red sandy clay loam; strong brown mottles

Substratum:
36 to 60 inches—strong brown, yellowish red, and brownish yellow sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6e
Hydrologic group: B

UsE—Urban land-Rion-Louisburg complex, 10 to 25 percent slopes, bouldery

Map Unit Composition

Urban land: About 60 percent
Rion and similar soils: About 25 percent
Louisburg and similar soils: About 15 percent

Description of Urban land

Urban land consists of areas that have been altered by cutting, filling, and shaping. Schools, parking lots, streets, commercial buildings, and residential dwellings are located in these areas.

Description of Rion

Setting

Landform: Hills
Position on the landform: Shoulders and backslopes
Slope: Strongly sloping or moderately steep
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 7 inches—strong brown sandy loam

Subsoil:
7 to 20 inches—yellowish red sandy clay loam
20 to 36 inches—yellowish red sandy clay loam; strong brown mottles

Substratum:
36 to 60 inches—strong brown, yellowish red, and brownish yellow sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6s
Hydrologic group: B

Description of Louisburg

Setting

Landform: Hills
Position on the landform: Shoulders and backslopes
Slope: Strongly sloping or moderately steep
Parent material: Residuum weathered from granite and gneiss

Typical Profile

Surface layer:
0 to 3 inches—olive brown sandy loam

Subsoil:
3 to 14 inches—light olive brown loamy sand
14 to 26 inches—yellowish brown sandy loam
26 to 38 inches—yellowish brown and light gray coarse sandy loam

Substratum:
38 to 50 inches—strong brown, light gray, and brownish yellow loamy sand
50 to 71 inches—very dark grayish brown and yellow loamy sand

Bedrock:
71 to 80 inches—soft, weathered granite

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Rapid
Available water capacity: Low
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6s
Hydrologic group: B

UwD—Urban land-Wynott-Mecklenburg-Wilkes complex, 6 to 15 percent slopes

Map Unit Composition

Urban land: About 60 percent
Wynott and similar soils: About 15 percent
Mecklenburg and similar soils: About 13 percent
Wilkes and similar soils: About 12 percent

Description of Urban land

Urban land consists of areas that have been altered by cutting, filling, and shaping. Schools, parking lots, streets, commercial buildings, and residential dwellings are located in these areas.

Description of Wynott

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Moderately sloping or strongly sloping
Parent material: Residuum weathered from amphibolite

Typical Profile

Surface layer:
0 to 7 inches—very dark grayish brown sandy loam

Subsoil:
7 to 20 inches—yellowish brown and light olive brown sandy clay

Substratum:
20 to 30 inches—light yellowish brown and yellowish brown sand

Bedrock:
30 to 42 inches—soft, weathered amphibolite
42 inches—hard, unweathered amphibolite

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Slow
Available water capacity: Low
Depth class: Moderately deep to bedrock

Component Interpretive Groups

Land capability class: 4e
Hydrologic group: C

Description of Mecklenburg

Setting

Landform: Hills
Position on the landform: Summits and shoulders
Slope: Moderately sloping or strongly sloping
Parent material: Residuum weathered from amphibolite

Typical Profile

Surface layer:
0 to 6 inches—brown sandy loam

Subsoil:
6 to 21 inches—yellowish red clay
21 to 28 inches—yellowish red clay
28 to 38 inches—yellowish red, red, and brownish yellow loam

Substratum:
38 to 80 inches—strong brown, light yellowish brown, and dark greenish gray sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Slow
Available water capacity: High
Depth class: Very deep

Component Interpretive Groups

Land capability class: 4e
Hydrologic group: C

Description of Wilkes

Setting

Landform: Hills
Position on the landform: Summits and shoulders

Slope: Moderately sloping or strongly sloping
Parent material: Residuum weathered from amphibolite

Typical Profile

Surface layer:
0 to 4 inches—dark brown sandy loam

Subsoil:
4 to 10 inches—dark greenish gray and dark yellowish brown sandy clay loam

Substratum:
10 to 18 inches—yellowish brown and greenish black sandy loam

Bedrock:
18 to 58 inches—soft, weathered amphibolite
58 inches—hard, unweathered amphibolite

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Slow
Available water capacity: Very low
Depth class: Shallow to bedrock

Component Interpretive Groups

Land capability class: 6e
Hydrologic group: C

W—Water

Map Unit Composition

Water: About 100 percent

Description of Water

This component consists of areas of open water, such as lakes, ponds, rivers, and streams.

WbA—Wehadkee-Cartecay complex, 0 to 2 percent slopes, occasionally flooded

Map Unit Composition

Wehadkee and similar soils: About 60 percent
Cartecay and similar soils: About 30 percent

Minor Components

- Toccoa soils, which are on the higher parts of the flood plain

Description of Wehadkee

Setting

Landform: Flood plains
Slope: Nearly level

Parent material: Fine-loamy alluvium

Typical Profile

Surface layer:
0 to 5 inches—very dark grayish brown silt loam

Subsoil:
5 to 15 inches—dark gray silty clay loam; dark yellowish brown mottles
15 to 25 inches—gray loam; yellowish brown mottles

Substratum:
25 to 38 inches—light gray sandy loam; yellowish brown mottles
38 to 56 inches—light gray sandy clay loam; yellowish brown mottles

Component Properties and Qualities

Drainage class: Poorly drained
Depth to water table: About 0.0 to 1.0 foot; apparent
Flooding: Occasional
Ponding: Occasional
Depth of ponding: 0.0 to 0.4 foot
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 6w
Hydrologic group: D

Description of Cartecay

Setting

Landform: Flood plains
Slope: Nearly level
Parent material: Coarse-loamy alluvium

Typical Profile

Surface layer:
0 to 4 inches—brown sandy loam

Substratum:
4 to 13 inches—dark yellowish brown sandy loam
13 to 26 inches—light olive brown sandy loam; grayish brown and reddish brown mottles
26 to 37 inches—dark grayish brown and brown sandy loam; yellowish red mottles
37 to 50 inches—dark gray sandy loam; yellowish red mottles
50 to 58 inches—gray loamy sand
58 to 62 inches—brown and dark gray sandy loam
62 to 66 inches—dark yellowish brown sand

Component Properties and Qualities

Drainage class: Somewhat poorly drained
Depth to water table: About 0.8 to 1.7 feet; apparent
Flooding: Occasional
Ponding: None

Permeability: Moderately rapid
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 3w
Hydrologic group: C

WcB—Wickham sandy loam, 2 to 6 percent slopes

Map Unit Composition

Wickham and similar soils: About 95 percent

Minor Components

- Altavista soils, which are in the lower landscape positions

Description of Wickham

Setting

Landform: Stream terraces
Slope: Gently sloping
Parent material: Fine-loamy alluvium

Typical Profile

Surface layer:
0 to 7 inches—brown fine sandy loam

Subsoil:
7 to 12 inches—dark brown sandy loam
12 to 38 inches—yellowish red sandy clay loam
38 to 54 inches—yellowish red sandy clay loam
54 to 62 inches—strong brown sandy clay loam
62 to 80 inches—strong brown sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Moderate
Available water capacity: Moderate
Depth class: Very deep

Component Interpretive Groups

Land capability class: 2e
Hydrologic group: B

WmD—Wynott-Mecklenburg-Wilkes complex, 6 to 15 percent slopes

Map Unit Composition

Wynott and similar soils: About 45 percent
Mecklenburg and similar soils: About 30 percent
Wilkes and similar soils: About 25 percent

Description of Wynott

Setting

Landform: Hills
Position on the landform: Summits, shoulders, and backslopes
Slope: Moderately sloping or strongly sloping
Parent material: Residuum weathered from amphibolite

Typical Profile

Surface layer:
0 to 7 inches—very dark grayish brown sandy loam

Subsoil:
7 to 20 inches—yellowish brown and light olive brown sandy clay

Substratum:
20 to 30 inches—light yellowish brown and yellowish brown sand

Bedrock:
30 to 42 inches—soft, weathered amphibolite
42 inches—hard, unweathered amphibolite

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Slow
Available water capacity: Low
Depth class: Moderately deep to bedrock

Component Interpretive Groups

Land capability class: 4e
Hydrologic group: C

Description of Mecklenburg

Setting

Landform: Hills
Position on the landform: Summits, shoulders, and backslopes
Slope: Moderately sloping or strongly sloping
Parent material: Residuum weathered from amphibolite

Typical Profile

Surface layer:
0 to 6 inches—brown sandy loam

Subsoil:
6 to 21 inches—yellowish red clay
21 to 28 inches—yellowish red clay
28 to 38 inches—yellowish red, red, and brownish yellow loam

Substratum:
38 to 80 inches—strong brown, light yellowish brown, and dark greenish gray sandy loam

Component Properties and Qualities

Drainage class: Well drained
Flooding: None

Ponding: None
Permeability: Slow
Available water capacity: High
Depth class: Very deep

Component Interpretive Groups

Land capability class: 4e
Hydrologic group: C

Description of Wilkes

Setting

Landform: Hills
Position on the landform: Summits, shoulders, and backslopes
Slope: Moderately sloping or strongly sloping
Parent material: Residuum weathered from amphibolite

Typical Profile

Surface layer:
0 to 4 inches—dark brown sandy loam

Subsoil:
4 to 10 inches—dark greenish gray and dark yellowish brown sandy clay loam

Substratum:
10 to 18 inches—yellowish brown and greenish black sandy loam

Bedrock:
18 to 58 inches—soft, weathered amphibolite
58 inches—hard, unweathered amphibolite

Component Properties and Qualities

Drainage class: Well drained
Flooding: None
Ponding: None
Permeability: Slow
Available water capacity: Very low
Depth class: Shallow to bedrock

Component Interpretive Groups

Land capability class: 6e
Hydrologic group: C

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as forestland; as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities; for agricultural waste management; and as wildlife habitat. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for pavements, sidewalks, campgrounds, playgrounds, lawns, and trees and shrubs.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate

gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

James E. Dean, conservation agronomist, and Holli Kuykendall, grassland water quality specialist, Natural Resources Conservation Service, helped prepare this section.

General management needed for crops and pasture is suggested in this section. The crops or pasture plants best suited to the soils, including some not commonly grown in the survey area, are identified; the system of land capability classification used by the Natural Resources Conservation Service is explained; and the estimated yields of the main crops and hay and pasture plants are listed for each soil. This section is useful to land users, equipment dealers, land improvement contractors, fertilizer companies, processing companies, planners, conservationists, and others.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading “Detailed Soil Map Units” and in the tables. Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Federal and State regulations require that any areas designated as wetlands cannot be altered without prior approval. Contact the local office of the Natural Resources Conservation Service for identification of hydric soils and potential wetlands.

In the survey area, soil erosion is a hazard on soils that have slopes of more than 3 percent. Loss of the surface layer through erosion is damaging. Soil productivity is reduced as the surface layer is lost and part of the subsoil is incorporated into the plow layer. Loss of the surface layer is especially damaging on soils that have a shallow surface layer or a clayey subsoil, or both, and on soils that have a layer in or below the subsoil that limits the depth of the root zone. Cecil, Lloyd, Madison, and Pacolet soils are examples of soils that have a clayey subsoil. Ashlar soils are an example of soils that have bedrock that limits the rooting depth.

Erosion on farmland results in the sedimentation of streams. Controlling erosion minimizes the pollution of water by runoff carrying plant nutrients, soil particles, and plant residue. It improves the quality of water for municipal use, for recreation, and for fish and wildlife.

Preparing a good seedbed is difficult in many sloping fields on clayey spots because much or all of the original friable surface soil has been lost through erosion. These eroded spots are common in areas of the eroded Cecil and Pacolet soils.

Erosion-control practices provide a protective surface cover, reduce runoff, and increase the rate of water infiltration. A cropping system that keeps a vegetative cover on the soil for extended periods helps to minimize soil loss and maintain the productive capacity of the soil. On livestock farms, including forage crops of legumes and grasses in the cropping system and in areas of permanent pasture and hayland helps to control erosion in sloping areas. The forage crops also add nitrogen to the soil and improve tilth.

In most areas of Cecil, Lloyd, Madison, and Pacolet soils that occur on hillsides and have slopes of more than 6 percent, contour farming and terracing are not practical because the slopes are too short and irregular. In these areas, cropping systems that provide a substantial cover of plant residue are needed to control erosion. Residue management, conservation tillage, cover crops, stripcropping, and the inclusion of grasses and legumes in the rotation system provide ground cover on

the soil surface and help to increase infiltration and reduce the hazards of runoff and erosion. These practices can be adapted to most of the soils in the survey area.

Terraces and diversions shorten the length of slopes and thus minimize erosion caused by runoff. They are most effective in areas of deep, well drained, gently sloping soils on ridgetops that are smooth and convex. Cecil and Lloyd soils are examples.

Most soils used for cropland are subject to erosion if they are plowed in fall and left bare until spring. Winter cover crops should be planted where cropland is plowed in fall.

Bottom land soils in the survey area include the Cartecay, Congaree, Buncombe, and Toccoa soils. The production of crops and pasture on the Cartecay soils generally is not possible unless drainage practices are used. Existing drainage systems need to be continually maintained on these soils. Bottom land soils are also subject to flooding.

Information about erosion-control and drainage practices for each kind of soil is available at the local office of the Natural Resources Conservation Service. Drainage is a major consideration in managing crops and pasture.

Managing drainage in conformance with regulations concerning wetlands may require special permits and extra planning. The local office of the Natural Resources Conservation Service should be contacted for identification of hydric soils and potential wetlands.

Many soils in the uplands are strongly acid or very strongly acid in their natural state. Because available phosphorus and potash levels are naturally low in most of these soils, applying ground limestone to raise the pH level improves the growth of legumes and other crops.

Most of the upland soils are naturally low in fertility. On all of the soils, the amount of lime, fertilizer, and organic wastes to be applied should be based on the results of a soil test, realistic crop yields, waste analysis, and a nutrient management plan. The Cooperative Extension Service and the Natural Resources Conservation Service can provide information concerning nutrient management plans.

Organic matter is an important factor in the germination of seeds, root growth, the infiltration of water into the soil, and soil erosion. Soils that have good tilth are granular and porous. Most of the soils used for crops in the survey area have a surface layer of sandy loam that has a low or moderately low content of organic matter. Residue management, stripcropping, the inclusion of grasses and legumes in the rotation system, and regular additions of manure and other organic material in combination with conservation tillage help to improve soil organic matter content.

Crops commonly grown in the survey area are corn, grass-legume hay, and pasture. Some field crops, such as cotton, are suited to the soils and climate of the survey area but are not commonly grown. Specialty crops include sweet corn, tomatoes, and other vegetables.

Deep soils that are characterized by good natural drainage and that warm up early in spring are especially well suited to many vegetables and small fruits. These soils include Cecil, Lloyd, Madison, and Pacolet soils that have slopes of less than 6 percent.

Most of the well drained soils in the survey area are suitable to orchards and nursery plants. Soils in low landscape positions, where frost is frequent and air drainage is poor, generally are poorly suited to early vegetables, small fruits, orchard crops, and nursery plants.

If adequately managed and protected from flooding, many of the soils on flood plains are suited to a wide range of vegetable crops.

Technical assistance and the latest information about specialty crops can be obtained from the local office of the Cooperative Extension Service or the Natural Resources Conservation Service.

Pastures and hayland typically consist of mixtures of endophyte-infected tall fescue and common bermudagrass. This plant combination is well suited to the survey area because it provides forage for cool- and warm-season grazing. In areas managed by deferred grazing practices, native warm-season perennial grasses, such as eastern gamagrass, switchgrass, and indiangrass, can provide high-quality, palatable forage. Alfalfa can be grown as a specialty forage crop.

Irrigation is used in the production of orchard and specialty crops. The major source of water for irrigation is surface water from streams and ponds.

Yields per Acre

The average yields per acre that can be expected of the principal crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of map units in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

Pasture yields are expressed in terms of animal unit months. An animal unit month (AUM) is the amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in the yields table are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system, soils are generally grouped at three levels—capability class, subclass, and unit (USDA, 1961).

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

Capability units are soil groups within a subclass. The soils in a capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to have similar productivity. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example, 2e-4 and 3e-6. These units are not given in all soil surveys.

The capability classification of the soils in this survey area is given in the section “Detailed Soil Map Units” and in the yields table.

Prime Farmland and Other Important Farmlands

Table 6 lists the map units in the survey area that are considered prime farmland and farmland of statewide importance. This list does not constitute a recommendation for a particular land use.

In an effort to identify the extent and location of important farmlands, the Natural Resources Conservation Service, in cooperation with other interested Federal, State, and local government organizations, has inventoried land that can be used for the production of the Nation’s food supply.

Prime farmland is of major importance in meeting the Nation’s short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government,

as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. The water supply is dependable and of adequate quality. Prime farmland is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

About 38,477 acres in the survey area, or nearly 11.2 percent of the total land acreage, meets the soil requirements for prime farmland. Scattered areas of this land are throughout the county.

For some soils identified in the table as prime farmland, measures that overcome a hazard or limitation, such as flooding, wetness, and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures.

In some areas, land that does not meet the criteria for prime or unique farmland is considered to be *farmland of statewide importance* for the production of food, feed, fiber, forage, and oilseed crops. The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as prime farmland if conditions are favorable. Farmland of statewide importance may include tracts of land that have been designated for agriculture by State law.

Forestland Productivity and Management

Josh A. Wheat, resource conservationist, Natural Resources Conservation Service, helped prepare this section.

Of the more than 342,400 acres in Fulton County, almost 30 percent, or 112,560 acres is forestland. About 107,781 acres, or 96 percent of the forestland, is privately owned, and the remainder is owned by local governments (GFC, 2004).

The most common trees in Fulton County include shortleaf pine and loblolly pine and mixed hardwoods, mainly white oak, northern red oak, hickory, and yellow-poplar (USDA, 1997).

Virgin forest once covered most of the county. As settlement progressed in the area, however, the upland, well drained soils were cleared for cultivation. The soils that remained in forest consisted of soils that had slopes greater than 20 percent, the soils in flood plains and depressions, and the deep, excessively drained soils on ridges, uplands, and flood plains. Farming peaked in the early 1900s and the trend during the next several decades was away from cultivation and back toward forest and pasture. Since the early 1960s, the rural farm population has decreased significantly and has shifted toward an urban and non-farm rural population (USDA, 1997).

The tables described in this section can help forest owners or managers plan the use of soils for wood crops. They show the potential productivity of the soils for wood crops and rate the soils according to the limitations that affect various aspects of forestland management.

Forestland Productivity

In table 7, the *potential productivity* of merchantable or *common trees* on a soil is expressed as a site index and as a volume number. The *site index* is the average height, in feet, that dominant and codominant trees of a given species attain in a specified number of years. The site index applies to fully stocked, even-aged, unmanaged stands. Commonly grown trees are those that forest managers generally favor in intermediate or improvement cuttings. They are selected on the basis of growth rate, quality, value, and marketability. More detailed information regarding site index is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The *volume of wood fiber*, a number, is the yield likely to be produced by the most important tree species. This number, expressed as cubic feet per acre per year and calculated at the age of culmination of the mean annual increment (CMAI), indicates the amount of fiber produced in a fully stocked, even-aged, unmanaged stand.

Trees to manage are those that are preferred for planting, seeding, or natural regeneration and those that remain in the stand after thinning or partial harvest.

Forestland Management

Interpretive ratings are given for various aspects of forestland management in tables 8a and 8b. The ratings are both verbal and numerical.

Some rating class terms indicate the degree to which the soils are suited to a specified aspect of forestland management. *Well suited* indicates that the soil has features that are favorable for the specified management aspect and has no limitations. Good performance can be expected, and little or no maintenance is needed. *Moderately suited* indicates that the soil has features that are moderately favorable for the specified management aspect. One or more soil properties are less than desirable, and fair performance can be expected. Some maintenance is needed. *Poorly suited* indicates that the soil has one or more properties that are unfavorable for the specified management aspect. Overcoming the unfavorable properties requires special design, extra maintenance, and costly alteration. *Unsuited* indicates that the expected performance of the soil is unacceptable for the specified management aspect or that extreme measures are needed to overcome the undesirable soil properties.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the specified aspect of forestland management (1.00) and the point at which the soil feature is not a limitation (0.00).

The paragraphs that follow indicate the soil properties considered in rating the soils. More detailed information about the criteria used in the ratings is available in the "National Forestry Manual," which is available in local offices of the Natural Resources Conservation Service or on the Internet.

The ratings of *suitability for log landings* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The soils are described as well suited, moderately suited, or poorly suited to use as log landings.

Ratings in the column *hazard of erosion on roads and trails* are based on the soil erodibility factor K, slope, and content of rock fragments. The ratings apply to unsurfaced roads and trails. The hazard is described as slight, moderate, or severe. A rating of *slight* indicates that little or no erosion is likely; *moderate* indicates that some erosion is likely, that the roads or trails may require occasional maintenance, and that simple erosion-control measures are needed; and *severe* indicates that significant erosion is expected, that the roads or trails require frequent maintenance, and that costly erosion-control measures are needed.

Ratings in the column *suitability for roads (natural surface)* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, ponding, flooding, and the hazard of soil slippage. The ratings indicate the suitability for using the natural surface of the soil for roads. The soils are described as well suited, moderately suited, or poorly suited to this use.

Ratings in the columns *suitability for hand planting* and *suitability for mechanical planting* are based on slope, depth to a restrictive layer, content of sand, plasticity index, rock fragments on or below the surface, depth to a water table, and ponding. The soils are described as well suited, moderately suited, poorly suited, or unsuited to these methods of planting. It is assumed that necessary site preparation is completed before seedlings are planted.

Ratings in the column *suitability for use of harvesting equipment* are based on slope, rock fragments on the surface, plasticity index, content of sand, the Unified classification, depth to a water table, and ponding. The soils are described as well suited, moderately suited, or poorly suited to this use.

Recreational Development

In tables 9a and 9b, the soils of the survey area are rated according to limitations that affect their suitability for recreational development. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season

when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in these tables can be supplemented by other information in this survey, for example, interpretations for dwellings without basements, for local roads and streets, and for septic tank absorption fields.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Playgrounds require soils that are nearly level, are free of stones, and can withstand intensive foot traffic. The ratings are based on the soil properties that affect the ease of developing playgrounds and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of playgrounds. For good trafficability, the surface of the playgrounds should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Golf fairways are subject to heavy foot traffic and some light vehicular traffic. Cutting or filling may be required. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer. The suitability of the soil for traps, tees, roughs, and greens is not considered in the ratings.

Wildlife Habitat

James R. Lathem, resource soil scientist, Natural Resources Conservation Service, helped prepare this section.

Soils affect the kind, amount, and vigor of vegetation available to wildlife as food and cover. The soils of Fulton County support a diversity of habitat that can sustain many wildlife species. Knowledge of soil types and the associated plant communities they support is valuable in managing wildlife. Generally, wildlife occupies areas that are the most suitable for their food, water, and cover requirements. Understanding soil-vegetation relationships is important in creating and maintaining productive areas of wildlife habitat. Soil surveys can be used in management programs, such as habitat improvement, species reintroduction, and creation of wildlife refuges. A variety of habitat for a diversity of wildlife is an important objective in wildlife management. The habitat needs of wildlife should be considered in all decisions involving land use and management. Fish and wildlife are important in the county because they provide opportunities for recreation and are resources that improve the local economy.

Some of the forests are hardwood, some are pine, and some are mixed pine and hardwoods. The cropland and woodland provide good or fair habitat for wildlife.

Cropland and pasture are interspersed with pine and hardwood forests in the survey area. Very deep, well drained upland soils, such as the Cecil, Lloyd, and Pacolet soils, are important soils for cropland and pasture. These soils support many native and domestic plants that are important to terrestrial wildlife. Abandoned pastures, old fields, and field borders support numerous woody and herbaceous plants that provide food and cover for white-tailed deer, turkey, rabbit, fox, bob-white quail, songbirds, and other wildlife species. The major native plants of importance to wildlife include greenbrier, lespedezas, croton, ragweed, partridge pea, clover, and sumac. Domestic plants of importance to wildlife include corn, soybeans, fescue, and small grains.

Pacolet, Madison, Cecil, and Lloyd soils are important soils for wildlife habitat on uplands. These soils support vegetation that provides habitat for white-tailed deer, turkey, raccoon, gray squirrel, opossum, fox, and other wildlife. The important overstory and understory woodland plant types are sweetgum, blackgum, dogwood, oak, hickory, holly, blackberry, and maple. Young pine plantations and thinned stands of hardwoods are important areas that support numerous woody and herbaceous plants, which provide food and cover for wildlife.

In the bottom lands, large stands of mixed hardwoods, including white oak, hickory, red maple, and tulip poplar, grow well on the Cartecay and Toccoa soils, which account for about 21,475 acres, or 6.3 percent, of Fulton County. These areas support species such as gray squirrel, turkey, white-tailed deer, raccoon, beaver, and ducks. Wetland areas on the Wehadkee soils provide important habitat for waterfowl and a variety of furbearers, including otter, beaver, muskrat, and raccoon. Blackgum, green ash, alder, and a variety of herbaceous plants are among the important plants for wildlife in these areas. Wehadkee soils occur on about 2,980 acres, or about 0.9 percent, of the county.

Fulton County has many small ponds and several miles of streams. Because of the fragile habitat requirements of fish, special efforts are needed to restrict both point and non-point sources of water pollution in the county. Good soil management practices for all types of land use are a primary consideration for controlling pollution in streams.

Soil types affect the kind and amount of vegetation that is available to wildlife as food and cover. The kind and abundance of wildlife depend largely on the amount and distribution of food and cover. Wildlife habitat can be improved by promoting the

establishment of desirable plants and by diversifying and enhancing the existing plant cover.

Hydric Soils

This section lists the map units that are rated as hydric soils in the survey area. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

The three essential characteristics of wetlands are hydrophytic vegetation, hydric soils, and wetland hydrology (Cowardin and others, 1979; U.S. Army Corps of Engineers, 1987; National Research Council, 1995; Tiner, 1985). Criteria for all of the characteristics must be met for areas to be identified as wetlands. Undrained hydric soils that have natural vegetation should support a dominant population of ecological wetland plant species. Hydric soils that have been converted to other uses should be capable of being restored to wetlands.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in “Soil Taxonomy” (Soil Survey Staff, 1999) and “Keys to Soil Taxonomy” (Soil Survey Staff, 2006) and in the “Soil Survey Manual” (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in “Field Indicators of Hydric Soils in the United States” (Hurt and others, 2002).

Hydric soils are identified by examining and describing the soil to a depth of about 20 inches. This depth may be greater if determination of an appropriate indicator so requires. It is always recommended that soils be excavated and described to the depth necessary for an understanding of the redoximorphic processes. Then, using the completed soil descriptions, soil scientists can compare the soil features required by each indicator and specify which indicators have been matched with the conditions observed in the soil. The soil can be identified as a hydric soil if at least one of the approved indicators is present.

Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

The following map unit meets the definition of hydric soils and, in addition, has at least one of the hydric soil indicators. This list can help in planning land uses; however, onsite investigation is recommended to determine the hydric soils on a specific site (National Research Council, 1995; Hurt and others, 2002).

WbA Wehadkee-Cartecay complex, 0 to 2 percent slopes, occasionally flooded

The following map units, in general, do not meet the definition of hydric soils because they do not have one of the hydric soil indicators. A portion of these map units, however, may include hydric soils. Onsite investigation is recommended to determine whether hydric soils occur and the location of the included hydric soils.

AaA Altavista sandy loam, 0 to 2 percent slopes, rarely flooded
CaA Cartecay-Toccoa complex, 0 to 2 percent slopes, occasionally flooded
CrA Congaree-Cartecay complex, 0 to 2 percent slopes, occasionally flooded

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for septic tank absorption fields and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of sand, roadfill, and topsoil; plan structures for water management; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Tables 10a and 10b show the degree and kind of soil limitations that affect dwellings with and without basements, lawns and landscaping, local roads and streets, and shallow excavations.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings without basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of 2 feet or at the depth of maximum frost penetration, whichever is deeper. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Lawns and landscaping require soils on which turf and ornamental trees and shrubs can be established and maintained. Irrigation is not considered in the ratings. The ratings are based on the soil properties that affect plant growth and trafficability after vegetation is established. The properties that affect plant growth are reaction; depth to a water table; ponding; depth to bedrock or a cemented pan; the available water capacity in the upper 40 inches; the content of salts, sodium, or calcium carbonate; and sulfidic materials. The properties that affect trafficability are flooding, depth to a water table, ponding, slope, stoniness, and the amount of sand, clay, or organic matter in the surface layer.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and

grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Sanitary Facilities

Table 11 shows the degree and kind of soil limitations that affect septic tank absorption fields and sewage lagoons. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

Sewage lagoons are shallow ponds constructed to hold sewage while aerobic bacteria decompose the solid and liquid wastes. Lagoons should have a nearly level floor surrounded by cut slopes or embankments of compacted soil. Nearly impervious soil material for the lagoon floor and sides is required to minimize seepage and contamination of ground water. Considered in the ratings are slope, permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, flooding, large stones, and content of organic matter.

Soil permeability is a critical property affecting the suitability for sewage lagoons. Most porous soils eventually become sealed when they are used as sites for sewage lagoons. Until sealing occurs, however, the hazard of pollution is severe. Soils that have a permeability rate of more than 2 inches per hour are too porous for the proper functioning of sewage lagoons. In these soils, seepage of the effluent can result in contamination of the ground water. Ground-water contamination is also a hazard if fractured bedrock is within a depth of 40 inches, if the water table is high enough to raise the level of sewage in the lagoon, or if floodwater overtops the lagoon.

A high content of organic matter is detrimental to proper functioning of the lagoon because it inhibits aerobic activity. Slope, bedrock, and cemented pans can cause construction problems, and large stones can hinder compaction of the lagoon floor. If the lagoon is to be uniformly deep throughout, the slope must be gentle enough and the soil material must be thick enough over bedrock or a cemented pan to make land smoothing practical.

Construction Materials

Table 12 gives information about the soils as potential sources of sand, roadfill, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

Sand is a natural aggregates suitable for commercial use with a minimum of processing. It is used in many kinds of construction. Specifications for each use vary widely. In the table, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand, the soil is considered a likely source regardless of thickness. The assumption is that the sand layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand. A rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand. The number 0.00 indicates that the layer is a poor source. The number 1.00 indicates that the layer is a good source. A number between 0.00 and 1.00 indicates the degree to which the layer is a likely source.

The rating class terms are *good, fair,* and *poor* as potential sources of roadfill and topsoil. The features that limit the soils as sources of these materials are specified in the table. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as sources of roadfill and topsoil. The lower the number, the greater the limitation.

Roadfill is soil material that is excavated in one place and used in road embankments in another place. In this table, the soils are rated as a source of roadfill for low embankments, generally less than 6 feet high and less exacting in design than higher embankments.

The ratings are for the whole soil, from the surface to a depth of about 5 feet. It is assumed that soil layers will be mixed when the soil material is excavated and spread.

The ratings are based on the amount of suitable material and on soil properties that affect the ease of excavation and the performance of the material after it is in place. The thickness of the suitable material is a major consideration. The ease of excavation is affected by large stones, depth to a water table, and slope. How well the

soil performs in place after it has been compacted and drained is determined by its strength (as inferred from the AASHTO classification of the soil) and linear extensibility (shrink-swell potential).

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas and embankments, dikes, and levees. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the table indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5 feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are determined by field examination of the soils and by laboratory index testing of some benchmark soils. Established standard procedures are followed. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory to determine particle-size distribution, plasticity, and compaction characteristics.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas. Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering properties, physical and chemical properties, and pertinent soil and water features.

Engineering Properties

Table 14 gives the engineering classifications and the range of engineering properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2005) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2004).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

If laboratory data are available, the A-1, A-2, and A-7 groups are further classified as A-1-a, A-1-b, A-2-4, A-2-5, A-2-6, A-2-7, A-7-5, or A-7-6. As an additional refinement, the suitability of a soil as subgrade material can be indicated by a group

index number. Group index numbers range from 0 for the best subgrade material to 20 or higher for the poorest.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

Physical and Chemical Soil Properties

Table 15 shows estimates of some physical and chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller. Clay is the only class data are given for in the table.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In the table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability refers to the ability of a soil to transmit water or air. The term “permeability,” as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per hour,

when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In the table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Water Features

Table 16 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. The table indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. The table indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under

normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 17 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2006). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. The categories are defined in the following paragraphs.

ORDER. Twelve soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Ultisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Udult (*Ud*, meaning humid, plus *ult*, from Ultisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Hapludults (*Hapl*, meaning minimal horizonation, plus *udult*, the suborder of the Ultisols that has an udic moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Hapludults.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine-loamy, mixed, semiactive, thermic Typic Hapludults.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Table 18 indicates the order, suborder, great group, subgroup, and family of the soil series in the survey area.

Soil Series and Their Morphology

In this section, each soil series recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each

series. A pedon, a small three-dimensional area of soil, that is typical of the series in the survey area is described. The detailed description of each soil horizon follows standards in the "Soil Survey Manual" (Soil Survey Division Staff, 1993) and in the "Field Book for Describing and Sampling Soils" (Schoeneberger and others, 2002). Many of the technical terms used in the descriptions are defined in "Soil Taxonomy" (Soil Survey Staff, 1999) and in "Keys to Soil Taxonomy" (Soil Survey Staff, 2006). Unless otherwise indicated, colors in the descriptions are for moist soil. Following the pedon description is the range of important characteristics of the soils in the series.

Altavista Series

Landform: Stream terraces
Parent material: Loamy fluvial sediments
Drainage class: Moderately well drained
Permeability class: Moderate
Depth class: Very deep
Slope range: 0 to 10 percent
Taxonomic classification: Fine-loamy, mixed, semiactive, thermic Aquic Hapludults

Geographically Associated Soils

- Cartecay soils, which have a coarse-loamy particle-size control section and are somewhat poorly drained
- Wickham soils, which are well drained

Typical Pedon

Altavista sandy loam, 0 to 2 percent slopes, rarely flooded; in Fulton County, Georgia, located 1.5 miles west of Cowart Lake, 2,000 feet south of Camp Creek, and 1,200 feet east of Enon Road; Ben Hill, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 40 minutes 18 seconds N. and long. 84 degrees 34 minutes 16 seconds W.

Ap—0 to 5 inches; dark grayish brown (10YR 4/2) sandy loam; weak fine granular structure; friable; common very fine and fine and few medium and coarse roots; 1 percent gravel and 4 percent cobbles; moderately acid; clear smooth boundary.

BE—5 to 12 inches; yellowish brown (10YR 5/4) sandy loam; weak fine subangular blocky structure; friable; few very fine, fine, and medium roots; 2 percent cobbles and 4 percent gravel; moderately acid; clear smooth boundary.

Bt1—12 to 25 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few very fine and fine roots; few distinct clay films; 4 percent gravel; moderately acid; clear smooth boundary.

Bt2—25 to 47 inches; yellowish brown (10YR 5/6) sandy clay loam; moderate medium subangular blocky structure; friable; few very fine roots; very few faint clay films; common fine prominent light gray (2.5Y 7/2) iron depletions; common fine faint yellowish brown (10YR 5/8) masses of oxidized iron; 4 percent gravel; moderately acid; clear smooth boundary.

BC—47 to 57 inches; very pale brown (10YR 7/3) and light brownish gray (2.5Y 6/2) sandy clay loam; weak fine subangular blocky structure; friable; few fine distinct brownish yellow (10YR 6/8) masses of oxidized iron; 4 percent gravel; moderately acid; clear smooth boundary.

C—57 to 74 inches; 65 percent light brownish gray (2.5Y 6/2) and 35 percent light yellowish brown (2.5Y 6/3) loam; massive; friable; few fine prominent brownish yellow (10YR 6/8) masses of oxidized iron; moderately acid; clear smooth boundary.

Cg—74 to 80 inches; light gray (2.5Y 7/1) sandy clay loam; massive; friable; common fine prominent brownish yellow (10YR 6/8) masses of oxidized iron; strongly acid.

Range in Characteristics

Thickness of the solum: 30 to more than 60 inches
Depth to bedrock: More than 60 inches
Content of mica flakes: Few or common in the B and C horizons of most pedons
Content and size of rock fragments: 0 to 5 percent gravel in the A and B horizons
Reaction: Extremely acid to moderately acid

A or Ap horizon:
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 2 to 4
Texture—sandy loam, fine sandy loam, or loamy sand

E horizon (where present):
Color—hue of 10YR, value of 5, and chroma of 3 or 4
Texture—sandy loam, fine sandy loam, or loamy sand

BE horizon (where present):
Color—hue of 7.5YR or 10YR, value of 4 or 5, and chroma of 4 or 6
Texture—sandy loam, loamy sand, or sandy clay loam

Bt horizon:
Color—hue of 5YR or 7.5YR, value of 5 to 7, and chroma of 3 to 8
Texture—sandy clay loam, clay loam, or sandy clay
Redoximorphic features—iron depletions in shades of olive and gray and masses of oxidized iron in shades of brown, yellow, and red; iron depletions within the upper 24 inches of the Bt horizon

Btg horizon (where present):
Color—hue of 10YR or 2.5Y, value of 5 to 7, and chroma of 1 or 2
Texture—sandy clay loam or clay loam
Redoximorphic features—iron depletions in shades of olive and gray and masses of oxidized iron in shades of brown, yellow, and red; iron depletions within the upper 24 inches of the Bt horizon

BC horizon (where present):
Color—hue of 7.5YR to 2.5Y, value of 5 to 7, and chroma of 3 to 8
Texture—sandy loam or sandy clay loam
Redoximorphic features—iron depletions in shades of olive and gray and masses of oxidized iron in shades of brown, yellow, and red

C horizon:
Color—hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 3 to 8
Texture—sandy loam, sand, loamy sand, or sandy clay loam
Redoximorphic features—iron depletions in shades of olive and gray and masses of oxidized iron in shades of brown, yellow, and red

Cg horizon (where present):
Color—hue of 7.5YR to 2.5Y, value of 4 to 7, and chroma of 1 or 2
Texture—sandy loam, sandy clay loam, or clay loam
Redoximorphic features—iron depletions in shades of olive and gray and masses of oxidized iron in shades of brown, yellow, and red

Appling Series

Landform: Hills
Parent material: Residuum weathered from igneous and metamorphic rock
Drainage class: Well drained
Permeability class: Moderate

Depth class: Very deep
Slope range: 2 to 10 percent
Taxonomic classification: Fine, kaolinitic, thermic Typic Kanhapludults

Geographically Associated Soils

- Rion soils, which have a fine-loamy particle-size control section
- Pacolet soils, which have a thinner and redder subsoil than the Appling soils
- Louisburg soils, which have a coarse-loamy particle-size control section
- Cecil soils, which have a redder subsoil than the Appling soils

Typical Pedon

Appling sandy loam, in an area of Appling-Hard Labor complex, 2 to 6 percent slopes; in Jasper County, Georgia, located 4.2 miles north of Monticello, Georgia, on Georgia Highway 11 to the intersection with Liberty Church Road, 0.8 mile northwest on Georgia Highway 11, about 2,200 feet northeast of road; Farrar, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 23 minutes 39 seconds N. and long. 83 degrees 44 minutes 53 seconds W.

A—0 to 6 inches; brown (10YR 4/3) sandy loam; weak fine granular structure; very friable; common very fine roots; 2 percent cobbles and 5 percent gravel; strongly acid; clear smooth boundary.

BA—6 to 10 inches; yellowish brown (10YR 5/4) sandy clay loam; weak medium subangular blocky structure; firm; few very fine roots; 2 percent cobbles and 3 percent gravel; very strongly acid; gradual wavy boundary.

Bt1—10 to 32 inches; yellowish brown (10YR 5/8) sandy clay; common medium prominent yellowish red (5YR 5/8) and common medium distinct brownish yellow (10YR 6/6) mottles; moderate medium subangular blocky structure; firm; few very fine roots; common distinct clay films; 2 percent cobbles and 4 percent gravel; very strongly acid; gradual wavy boundary.

Bt2—32 to 41 inches; yellowish brown (10YR 5/8) sandy clay; common fine distinct yellowish red (5YR 5/8) and common medium distinct very pale brown (10YR 8/4) mottles; moderate medium subangular blocky structure; firm; common distinct clay films; 2 percent cobbles and 4 percent gravel; very strongly acid; gradual wavy boundary.

BC—41 to 51 inches; 34 percent yellowish brown (10YR 5/8), 33 percent very pale brown (10YR 7/4), and 33 percent strong brown (7.5YR 5/8) sandy clay loam; massive; friable; 2 percent gravel; very strongly acid; gradual wavy boundary.

C—51 to 60 inches; 34 percent yellowish brown (10YR 5/8), 33 percent red (2.5YR 4/8), and 33 percent light yellowish brown (2.5Y 6/4) sandy loam; massive; firm; 2 percent gravel; very strongly acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches
Depth to bedrock: More than 60 inches
Content of mica flakes: Few or common in the A and Bt horizons and few to many in the BC and C horizons
Content and size of rock fragments: 0 to 10 percent gravel in the A and E horizons and 0 to 8 percent gravel in the B horizons
Reaction: Very strongly acid or strongly acid, except where lime has been applied; moderately acid or slightly acid in the upper part

A or Ap horizon:
Color—hue of 5YR to 2.5Y, value of 3 to 6, and chroma of 2 to 6
Texture—sandy loam, fine sandy loam, or loamy sand

E horizon:
Color—hue of 5YR to 2.5Y, value of 4 to 6, and chroma of 4 or 6
Texture—sandy loam or loamy sand

BA or BE horizon:
Color—hue of 5YR to 10YR, value of 5 or 6, and chroma of 3 to 8
Texture—sandy clay loam or sandy loam

Bt horizon:
Color—hue of 5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8
Texture—clay loam, sandy clay, or clay
Mottles—few to many in shades of red, yellow, and brown in most pedons with hue of 5YR

BC horizon:
Color—hue of 5YR to 2.5Y, value of 4 to 7, and chroma of 4 to 8; or variegated in these colors
Texture—sandy clay loam, clay loam, or sandy loam
Mottles—evident patterns of mottling in pedons with hue of 5YR

C horizon:
Color—hue of 2.5YR to 7.5YR, value of 4 to 8, and chroma of 4 to 8
Texture—sandy loam, sandy clay loam, or clay loam

Ashlar Series

Landform: Hills
Parent material: Residuum weathered from granite and gneiss
Drainage class: Excessively drained
Permeability class: Moderately rapid
Depth class: Moderately deep
Slope range: 6 to 25 percent
Taxonomic classification: Coarse-loamy, mixed, semiactive, thermic Typic Dystrudepts

Geographically Associated Soils

- Rion soils, which have a fine-loamy particle-size control section and do not have bedrock within 60 inches
- Madison soils, which have a fine particle-size control section and do not have bedrock within 60 inches
- Louisburg soils, which do not have bedrock within 60 inches
- Grover soils, which have a fine-loamy particle-size control section and do not have bedrock within 60 inches

Typical Pedon

Ashlar loamy sand, in an area of Ashlar-Rion complex, 6 to 25 percent slopes, stony; in Fulton County, Georgia, located 700 feet northeast of Peters Cemetery, 1,500 feet east of Peters Road, and 2,400 feet north of county line; Fairburn, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 32 minutes 47 seconds N. and long. 84 degrees 30 minutes 42 seconds W.

A—0 to 6 inches; dark yellowish brown (10YR 3/4) loamy sand; weak fine granular structure; very friable; common very fine, fine, and medium and few coarse roots; 2 percent cobbles and 7 percent gravel; moderately acid; clear smooth boundary.
Bw—6 to 21 inches; yellowish brown (10YR 5/4) sandy loam; weak fine subangular blocky structure; friable; common fine and few medium and coarse roots; 2 percent cobbles and 5 percent gravel; very strongly acid; clear wavy boundary.

Cr—21 to 24 inches; soft, weathered granite and gneiss.
R—24 inches; hard, unweathered granite and gneiss.

Range in Characteristics

Thickness of the solum: 10 to 38 inches
Depth to hard bedrock: 20 to 40 inches
Content of mica flakes: Few or common in the solum and in the C horizon
Content and size of rock fragments: 0 to 15 percent gravel and 0 to 10 percent cobbles in the A and B horizons
Rock fragments at the surface: Up to 0.1 percent stones; class 1
Reaction: Very strongly acid to moderately acid in the A and E horizons and extremely acid to strongly acid in the B and C horizons

A or Ap horizon:
Color—hue of l0YR or 2.5Y, value of 3 to 6, and chroma of 2 to 4
Texture—sandy loam or loamy sand

E horizon (where present):
Color—hue of l0YR or 2.5Y, value of 4 to 6, and chroma of 2 to 4
Texture—sandy loam or loamy sand

Bw horizon:
Color—hue of 10YR or 2.5Y, value of 4 to 6, and chroma of 4 to 8
Texture—sandy loam, loamy sand, or sand

C horizon (where present):
Color—hue of 5YR to 2.5Y, value of 3 to 8, and chroma of 1 to 8
Texture—sandy loam or loamy sand

Cr horizon:
Type of bedrock—soft, weathered igneous or high-grade metamorphic rock

R layer:
Type of bedrock—hard, unweathered igneous or high-grade metamorphic rock

Bethlehem Series

Landform: Hills
Parent material: Residuum weathered from mica schist
Drainage class: Well drained
Permeability class: Moderate
Depth class: Moderately deep
Slope range: 2 to 10 percent
Taxonomic classification: Fine, kaolinitic, thermic Typic Kanhapludults

Geographically Associated Soils

- Saw soils, which have hard bedrock at a depth of 20 to 40 inches
- Mountain Park soils, which have a fine-loamy particle-size control section
- Madison soils, which do not have bedrock within 60 inches
- Grover soils, which have a fine-loamy particle-size control section and do not have bedrock within 60 inches

Typical Pedon

Bethlehem sandy loam, in an area of Madison-Bethlehem complex, 2 to 6 percent slopes, moderately eroded; in Fulton County, Georgia, located 3,000 feet east of Alpharetta Highway, 325 feet south of Big Creek, 700 feet east of trail junction, and 10 feet south of trail in Vickery Creek Park; Roswell, Georgia, 7.5-minute USGS

topographic quadrangle; lat. 34 degrees 00 minutes 43 seconds N. and long. 84 degrees 21 minutes 25 seconds W.

A—0 to 5 inches; strong brown (7.5YR 4/6) sandy loam; moderate fine granular structure; friable; common very fine, fine, medium, and coarse roots; few fine mica flakes; 2 percent gravel; moderately acid; clear smooth boundary.

Bt—5 to 27 inches; red (2.5YR 4/6) clay loam; moderate medium subangular blocky structure; friable; common fine and few medium roots; few faint clay films; common fine mica flakes; 2 percent gravel; moderately acid; clear smooth boundary.

Bt/C—27 to 30 inches; red (2.5YR 4/6) clay loam (Bt part) and sandy loam (C part); moderate fine subangular blocky structure (Bt part); weak fine subangular blocky structure (C part); friable; few very fine, fine, and medium roots; few faint clay films; many fine mica flakes; moderately acid; clear smooth boundary.

Cr—30 to 56 inches; soft, weathered mica schist.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to soft bedrock: 20 to 40 inches
Content of mica flakes: Few or common in the upper horizons; common or many in the lower part of the solum
Content and size of rock fragments: 0 to 5 percent gravel throughout
Reaction: Very strongly acid to moderately acid

A horizon:
Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 3 or 4
Texture—sandy loam

Bt horizon:
Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8
Texture—clay loam or clay

BC horizon (where present):
Color—hue of 2.5YR to 7.5YR, value of 4 or 5, and chroma of 6 or 8
Texture—sandy clay loam

C horizon (where present):
Color—variegated in shades of red, yellow, and brown
Texture—sandy loam saprolite

Cr horizon:
Type of bedrock—soft, weathered high-grade metamorphic rock

Buncombe Series

Landform: Flood plains
Parent material: Loamy alluvium
Drainage class: Excessively drained
Permeability class: Rapid
Depth class: Very deep
Slope range: 0 to 3 percent
Taxonomic classification: Mixed, thermic Typic Udipsamments

Geographically Associated Soils

- Toccoa soils, which have a coarse-loamy particle-size control section
- Cartecay soils, which have a coarse-loamy particle-size control section and are somewhat poorly drained

Typical Pedon

Buncombe loamy sand, 0 to 3 percent slopes, occasionally flooded; in Jasper County, Georgia, located 0.2 mile north of Georgia Highway 16 on Old State Route 221, about 100 feet west of road; Lloyd Shoals Dam, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 18 minutes 22 seconds N. and long. 83 degrees 50 minutes 12 seconds W.

A—0 to 10 inches; dark yellowish brown (10YR 4/4) loamy sand; weak fine granular structure; very friable; many fine roots; 1 percent gravel; strongly acid; clear smooth boundary.
C1—10 to 35 inches; yellowish brown (10YR 5/4) sand; single grain; loose; few fine and medium roots; few very fine mica flakes; 1 percent gravel; very strongly acid; gradual wavy boundary.
C2—35 to 55 inches; yellowish brown (10YR 5/4) sand; few fine distinct brownish yellow (10YR 6/6) mottles; single grain; loose; few very fine mica flakes; 1 percent gravel; very strongly acid; gradual wavy boundary.
C3—55 to 60 inches; dark yellowish brown (10YR 4/4) loamy sand; few fine distinct brownish yellow (10YR 6/6) mottles; single grain; very friable; very strongly acid.

Range in Characteristics

Depth to bedrock: More than 120 inches
Content and size of rock fragments: 0 to 1 percent gravel throughout
Reaction: Very strongly acid to slightly acid

A or Ap horizon:
Color—hue of 10YR, value of 3 to 5, and chroma of 2 to 6
Texture—loamy sand or sand

Bw horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—loamy sand or sand

C horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 8, and chroma of 3 to 8
Texture—stratified sand to loam

Cartecay Series

Landform: Flood plains
Parent material: Coarse-loamy alluvium
Drainage class: Somewhat poorly drained
Permeability class: Moderately rapid
Depth class: Very deep
Slope range: 0 to 2 percent
Taxonomic classification: Coarse-loamy, mixed, semiactive, nonacid, thermic Aquic Udifluvents

Geographically Associated Soils

- Toccoa soils, which are well drained or moderately well drained
- Wehadkee soils, which have a fine-loamy particle-size control section and are poorly drained or very poorly drained
- Congaree soils, which have a fine-loamy particle-size control section and are moderately well drained
- Chewacla soils, which have a fine-loamy particle-size control section

Typical Pedon

Cartecay sandy loam, in an area of Cartecay-Toccoa complex, 0 to 2 percent slopes, occasionally flooded; in Fulton County, Georgia, located 1.0 mile southwest of Arnold Mill, 200 feet north of power line right-of-way, 2,200 feet east of Lackey Road, in mixed hardwood forest; Mountain Park, Georgia, 7.5-minute USGS topographic quadrangle; lat. 34 degrees 06 minutes 18 seconds N. and long. 84 degrees 23 minutes 53 seconds W.

A—0 to 4 inches; brown (7.5YR 4/3) sandy loam; weak fine granular structure; very friable; common very fine, fine, medium, and coarse roots; many fine mica flakes; 2 percent gravel; moderately acid; clear smooth boundary.

C1—4 to 13 inches; dark yellowish brown (10YR 4/4) sandy loam; massive; very friable; common fine and medium roots; many fine mica flakes; 1 percent cobbles and 1 percent gravel; moderately acid; clear smooth boundary.

C2—13 to 26 inches; light olive brown (2.5Y 5/3) sandy loam; massive; very friable; few very fine and fine roots; few fine faint grayish brown (2.5Y 5/2) iron depletions; common fine prominent reddish brown (5YR 4/4) masses of oxidized iron; many very fine mica flakes; 1 percent cobbles and 1 percent gravel; strongly acid; clear smooth boundary.

C3—26 to 37 inches; 60 percent dark grayish brown (10YR 4/2) and 40 percent brown (10YR 4/3) sandy loam; massive; very friable; few very fine and fine roots; few fine prominent yellowish red (5YR 4/6) masses of oxidized iron; many very fine mica flakes; 1 percent cobbles and 1 percent gravel; strongly acid; clear smooth boundary.

Cg1—37 to 50 inches; dark gray (10YR 4/1) sandy loam; massive; very friable; common fine prominent yellowish red (5YR 4/6) masses of oxidized iron; common fine mica flakes; 1 percent cobbles and 10 percent gravel; strongly acid; clear smooth boundary.

Cg2—50 to 58 inches; gray (10YR 5/1) loamy sand; massive; very friable; 1 percent cobbles and 10 percent gravel; moderately acid; clear smooth boundary.

Cg3—58 to 62 inches; 50 percent dark gray (10YR 4/1) and 50 percent brown (10YR 4/3) sandy loam; massive; very friable; 1 percent cobbles and 10 percent gravel; moderately acid; clear smooth boundary.

C4—62 to 66 inches; dark yellowish brown (10YR 4/6) sand; massive; very friable; 1 percent gravel; moderately acid.

Range in Characteristics

Content of mica flakes: Few to many throughout
Content and size of rock fragments: 0 to 6 percent gravel in the A and C horizons and 0 to 45 percent gravel in the Cg horizon
Reaction: Strongly acid to slightly acid

A horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 2 to 6
Texture—sandy loam or loamy sand

C horizon:
Color—hue of 5YR to 10YR, value of 4 to 8, and chroma of 3 to 6
Texture—sandy loam or loamy sand with thin strata of coarser or finer material
Redoximorphic features—iron depletions in shades of olive and gray and masses of oxidized iron in shades of brown, yellow, and red; iron depletions within 20 inches of the soil surface

Cg horizon:
Color—hue of 10YR, value of 4 to 6, and chroma of 1 or 2
Texture—sandy loam or sandy clay loam

Cecil Series

Landform: Hills
Parent material: Residuum weathered from igneous and metamorphic rock
Drainage class: Well drained
Permeability class: Moderate
Depth class: Very deep
Slope range: 2 to 10 percent
Taxonomic classification: Fine, kaolinitic, thermic Typic Kanhapludults

Geographically Associated Soils

- Pacolet soils, which have a thinner subsoil than the Cecil soils
- Madison soils, which contain more mica than the Cecil soils
- Appling soils, which have a yellower subsoil than the Cecil soils

Typical Pedon

Cecil sandy loam, 2 to 6 percent slopes, moderately eroded; in Fulton County, Georgia, located 1.0 mile northeast of Palmetto, Georgia, on Highway 29, about 400 feet north of Highway 29 and 600 hundred feet south of Mill Road; Palmetto, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 32 minutes 06 seconds N. and long. 84 degrees 38 minutes 46 seconds W.

A—0 to 3 inches; brown (7.5YR 4/4) sandy loam; weak fine granular structure; very friable; many fine roots; 2 percent cobbles and 5 percent gravel; very strongly acid; clear smooth boundary.

BE—3 to 9 inches; 60 percent red (2.5YR 4/6) and 40 percent brown (7.5YR 4/4) sandy clay loam; weak fine subangular blocky structure; friable; common fine roots; 3 percent cobbles and 8 percent gravel; very strongly acid; clear smooth boundary.

Bt1—9 to 26 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; firm; few medium roots; few distinct clay films; very strongly acid; clear smooth boundary.

Bt2—26 to 31 inches; red (2.5YR 4/6) clay; common medium prominent light yellowish brown (10YR 6/4) mottles; moderate medium subangular blocky structure; firm; common distinct clay films; very strongly acid; clear smooth boundary.

Bt3—31 to 50 inches; red (2.5YR 4/6) clay loam; moderate medium subangular blocky structure; firm; very strongly acid; gradual smooth boundary.

BC—50 to 60 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few faint clay films; 1 percent cobbles and 8 percent gravel; very strongly acid.

Range in Characteristics

Thickness of the solum: 30 to more than 60 inches
Depth to bedrock: 72 to 120 inches or more
Content of mica flakes: Few or common flakes of mica in the Bt horizon and few to many flakes of mica in the BC and C horizons
Content and size of rock fragments: 0 to 10 percent gravel and 0 to 5 percent cobbles in the A and B horizons and 0 to 30 percent gravel and 0 to 3 percent cobbles in the BC horizon
Reaction: Very strongly acid to moderately acid in the A horizon and very strongly acid or strongly acid in the B and C horizons

A or Ap horizon:
Color—hue of 5YR to 10YR, value of 3 to 5, and chroma of 2 to 8
Texture—sandy loam or loamy sand

E horizon (where present):
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8
Texture—sandy loam or loamy sand

BA or BE horizon (where present):
Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 3 to 8
Texture—sandy clay loam or sandy loam

Bt horizon:
Color—hue of 2.5YR, value of 4 or 5, and chroma of 6 or 8
Texture—clay, clay loam, or sandy clay

BC horizon:
Color—hue of 2.5YR or 5YR, value of 4 to 6, and chroma of 4 to 8
Texture—sandy clay loam

C horizon:
Color—variegated in shades of red, brown, and yellow
Texture—sandy loam saprolite

Congaree Series

Landform: Flood plains
Parent material: Fine-loamy alluvium
Drainage class: Well drained
Permeability class: Moderate
Depth class: Very deep
Slope range: 0 to 2 percent
Taxonomic classification: Fine-loamy, mixed, active, nonacid, thermic Oxyaquic Udifluvents

Geographically Associated Soils

- Toccoa soils, which have a coarse-loamy particle-size control section
- Chewacla soils, which are somewhat poorly drained
- Cartecay soils, which have a coarse-loamy particle-size control section and are somewhat poorly drained

Typical Pedon

Congaree sandy loam, 0 to 2 percent slopes, occasionally flooded; in Fulton County, Georgia, located three miles west of Sandtown School, 200 feet south of the Chattahoochee River, and 5,800 feet west of Fulton Industrial Boulevard; Ben Hill, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 42 minutes 39 seconds N. and long. 84 degrees 36 minutes 24 seconds W.

A—0 to 8 inches; dark yellowish brown (10YR 4/4) sandy loam; weak fine granular structure; very friable; common fine and few medium roots; many very fine mica flakes throughout; 2 percent gravel; moderately acid; clear smooth boundary.
C1—8 to 18 inches; strong brown (7.5YR 4/6) loam; massive; friable; few very fine and fine roots; few very fine mica flakes throughout; 2 percent gravel; moderately acid; clear smooth boundary.
C2—18 to 36 inches; strong brown (7.5YR 5/6) sandy clay loam; massive; friable; few very fine roots; few very fine mica flakes throughout; 2 percent gravel; moderately acid; clear smooth boundary.

C3—36 to 50 inches; 60 percent yellowish brown (10YR 5/4) and 40 percent strong brown (7.5YR 5/6) loam; massive; friable; common fine distinct yellowish red (5YR 4/6) masses of oxidized iron; few fine mica flakes throughout; 2 percent gravel; moderately acid; clear smooth boundary.

C4—50 to 65 inches; 50 percent yellowish red (5YR 5/6) and 50 percent yellowish brown (10YR 5/6) loam; massive; friable; common fine mica flakes throughout; 2 percent gravel; moderately acid; clear smooth boundary.

C5—65 to 74 inches; 65 percent yellowish red (5YR 5/6) and 35 percent strong brown (7.5YR 5/6) sandy loam; massive; friable; many fine mica flakes throughout; 2 percent gravel; moderately acid.

Range in Characteristics

Depth to bedrock: More than 120 inches
Content of mica flakes: Few to many flakes of mica throughout
Content and size of rock fragments: 0 to 2 percent gravel in the A horizon and 0 to 5 percent gravel in the C horizons
Reaction: Very strongly acid to neutral throughout; some part of control section has a pH of 5.5 or higher

A horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 6
Texture—sandy loam, fine sandy loam, or loam

C horizon:
Color—hue of 5YR to 10YR, value of 3 to 5, and chroma of 3 to 6
Texture—sandy clay loam, fine sandy loam, sandy loam, or sand
Redoximorphic features—iron depletions in shades of brown and gray and masses of oxidized iron in shades of red and brown

Enon Series

Landform: Hills
Parent material: Residuum weathered from amphibolite
Drainage class: Well drained
Permeability class: Slow
Depth class: Very deep
Slope range: 6 to 10 percent
Taxonomic classification: Fine, mixed, active, thermic Ultic Hapludalfs

Geographically Associated Soils

- Wilkes soils, which have a loamy particle-size control section and have soft bedrock at a depth of 10 to 20 inches
- Iredell soils, which are moderately well drained
- Wynott soils, which have soft bedrock at a depth of 20 to 40 inches

Typical Pedon

Enon very gravelly sandy loam, in an area of Enon-Wynott complex, 6 to 10 percent slopes, bouldery; in Fulton County, Georgia, located 1.0 mile northwest of the southeast corner of Fulton County, Georgia, 500 feet west of Forest Park Road, and 600 feet north of I-285; Southeast Atlanta, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 39 minutes 46 seconds N. and long. 84 degrees 21 minutes 30 seconds W.

A—0 to 4 inches; very dark grayish brown (10YR 3/2) very gravelly sandy loam; moderate fine granular structure; friable; many very fine and fine roots; 10 percent cobbles, 15 percent stones, and 30 percent gravel; moderately acid; clear smooth boundary.
BE—4 to 6 inches; light olive brown (2.5Y 5/3) gravelly sandy clay loam; moderate fine granular structure; friable; many very fine and fine roots; 4 percent cobbles and 20 percent gravel; moderately acid; clear smooth boundary.
Bt—6 to 16 inches; dark yellowish brown (10YR 4/6) clay; moderate medium subangular blocky structure; firm; common very fine and fine and few medium roots; many prominent clay films; common fine mica flakes throughout; 1 percent cobbles and 3 percent gravel; moderately acid; clear smooth boundary.
BC—16 to 27 inches; 65 percent dark yellowish brown (10YR 4/6) and 35 percent olive brown (2.5Y 4/3) sandy clay loam; weak fine subangular blocky structure; friable; common very fine and fine roots; common distinct clay films; common fine black (10YR 2/1) iron-manganese masses; many fine mica flakes throughout; 1 percent cobbles and 1 percent gravel; slightly acid; clear smooth boundary.
C—27 to 75 inches; 35 percent dark yellowish brown (10YR 3/6), 25 percent olive brown (2.5Y 4/4), 25 percent olive (5Y 4/3), and 15 percent dark greenish gray (10GY 4/1) sandy loam; massive; friable; few very fine roots; many fine mica flakes throughout; 2 percent gravel; slightly acid.

Range in Characteristics

Thickness of the solum: 20 to 50 inches
Depth to bedrock: More than 60 inches
Content and size of rock fragments: 0 to 45 percent gravel, 0 to 25 percent cobbles, and 0 to 30 percent stones in the A, Ap, and E horizons and 0 to 6 percent gravel and 0 to 2 percent cobbles in the B and C horizons
Rock fragments at the surface: Up to 0.1 percent stones and boulders; class 1
Reaction: Strongly acid to slightly acid in the upper horizons and strongly acid to moderately alkaline in the lower horizons

A horizon:
Color—hue of 10YR or 2.5Y, value of 3 to 5, and chroma of 2 to 4
Texture—sandy loam and loamy sand

E horizon (where present):
Color—hue of 10YR, value of 4 to 6, and chroma of 2 to 4
Texture—sandy loam

BA or BE horizon (where present):
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8
Texture—sandy clay loam or sandy loam

Bt horizon:
Color—hue of 7.5YR to 5Y, value of 4 to 6, and chroma of 4 to 8
Texture—clay or clay loam

BC horizon (where present):
Color—hue of 10YR to 5Y, value of 4 to 6, and chroma of 3 to 8; few to many mottles in shades of brown and yellow in most pedons; may lack a dominant color and is variegated in shades of brown and yellow
Texture—sandy clay loam or sandy loam

C horizon:
Color—hue of 10YR to 5Y, value of 4 to 6, and chroma of 3 to 8
Texture—sandy loam, loamy sand, or sand

Grover Series

Landform: Hills
Parent material: Residuum weathered from mica schist
Drainage class: Well drained
Permeability class: Moderate
Depth class: Very deep
Slope range: 2 to 60 percent
Taxonomic classification: Fine-loamy, micaceous, thermic Typic Hapludults

Geographically Associated Soils

- Rion soils, which have less mica than the Grover soils
- Pacolet soils, which have a fine particle-size control section and contain less mica that the Grover soils
- Mountain Park soils, which have soft bedrock at a depth of 20 to 40 inches
- Madison soils, which have a fine particle-size control section
- Bethlehem soils, which have a fine particle-size control section and have soft bedrock at a depth of 20 to 40 inches

Typical Pedon

Grover gravelly sandy loam, in an area of Grover-Mountain Park complex, 2 to 10 percent slopes, stony; in Fulton County, Georgia, located 1.0 mile southwest of Northside Drive exit of I-285, about 100 feet south of Riverview Road, 300 feet southwest from trail fork on right, and 150 feet down slope at 330 degrees; Sandy Springs, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 53 minutes 39 seconds N. and long. 84 degrees 26 minutes 13 seconds W.

A—0 to 4 inches; dark yellowish brown (10YR 3/4) gravelly sandy loam; moderate fine granular structure; very friable; common very fine, fine, medium, and coarse roots; many fine mica flakes; 5 percent cobbles, 10 percent stones, and 15 percent gravel; strongly acid; clear wavy boundary.

E—4 to 11 inches; yellowish brown (10YR 5/4) gravelly sandy loam; moderate fine granular structure; very friable; common very fine, fine, medium, and coarse roots; many fine and medium mica flakes; 3 percent cobbles and 17 percent gravel; strongly acid; clear smooth boundary.

BE—11 to 14 inches; 60 percent yellowish red (5YR 5/6) and 40 percent strong brown (7.5YR 5/8) sandy loam; weak fine subangular blocky structure; friable; common very fine and fine roots; many fine mica flakes; 2 percent cobbles and 13 percent gravel; moderately acid; clear smooth boundary.

Bt—14 to 25 inches; 60 percent red (2.5YR 4/6) and 40 percent strong brown (7.5YR 5/6) sandy clay loam; moderate fine subangular blocky structure; friable; common very fine and fine and few medium and coarse roots; common distinct clay films; many fine and medium mica flakes; 12 percent gravel; moderately acid; clear wavy boundary.

BC—25 to 31 inches; red (2.5YR 4/6) sandy loam; weak fine subangular blocky structure; friable; few very fine and fine roots; few faint clay films; many fine and medium mica flakes; 2 percent gravel; moderately acid; clear wavy boundary.

C—31 to 80 inches; 40 percent yellowish red (5YR 4/6), 30 percent red (2.5YR 4/6), 20 percent strong brown (7.5YR 4/6), and 10 percent dark grayish brown (10YR 4/2) loamy sand; massive; very friable; few very fine roots; many fine and medium mica flakes; moderately acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: More than 60 inches

Content of mica flakes: Common to many in the A horizon and many in the Bt, BC, and C horizons
Content and size of rock fragments: 0 to 15 percent gravel and 0 to 12 percent cobbles in the A horizon, 0 to 15 percent gravel in the B horizons, and 0 to 2 percent gravel in the C horizon
Rock fragments at the surface: Up to 0.1 percent stones; class 1
Reaction: Very strongly acid to slightly acid in the A, Ap, and E horizons and very strongly acid to moderately acid in the Bt, BC, and C horizons

A or Ap horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 2 to 6
Texture—sandy loam or fine sandy loam

E horizon (where present):
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8
Texture—sandy loam or loamy sand

BE or BA horizon (where present):
Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—sandy loam or sandy clay loam

Bt horizon:
Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—sandy clay loam or clay loam

BC horizon:
Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—sandy loam or sandy clay loam

C horizon:
Color—variegated in shades of red, brown, and yellow
Texture—sandy loam or loamy sand

Gwinnett Series

Landform: Hills
Parent material: Residuum weathered from igneous and metamorphic rock and/or residuum weathered from amphibolite
Drainage class: Well drained
Permeability class: Moderate
Depth class: Deep
Slope range: 6 to 15 percent
Taxonomic classification: Fine, kaolinitic, thermic Rhodic Kanhapludults

Geographically Associated Soils

- Pacolet soils, which do not have bedrock within 60 inches and do not have a dark red subsoil
- Madison soils, which do not have bedrock within 60 inches and do not have a dark red subsoil
- Cecil soils, which do not have bedrock within 60 inches and do not have a dark red subsoil
- Lloyd soil, which do not have bedrock within 60 inches

Typical Pedon

Gwinnett sandy loam, in an area of Lloyd-Gwinnett complex, 6 to 15 percent slopes, moderately eroded; in Newton County, Georgia, located 4.25 miles north of Roswell, Georgia, 3,000 feet west of Broadwell Road, and 2,900 feet south of Doris Road;

Roswell, Georgia, 7.5-minute USGS topographic quadrangle; lat. 34 degrees 06 minutes 10 seconds N. and long. 84 degrees 20 minutes 58 seconds W.

A—0 to 5 inches; dark reddish brown (5YR 3/4) sandy loam; weak fine granular structure; very friable; common fine roots; 1 percent cobbles and 7 percent gravel; slightly acid; clear smooth boundary.
Bt1—5 to 22 inches; dark red (2.5YR 3/6) clay; moderate medium subangular blocky structure; firm; common fine roots; common distinct clay films; 1 percent cobbles and 5 percent gravel; strongly acid; clear smooth boundary.
Bt2—22 to 38 inches; dark red (2.5YR 3/6) clay loam; moderate medium subangular blocky structure; firm; common fine roots; few distinct clay films; 2 percent gravel; moderately acid; clear smooth boundary.
C—38 to 41 inches; 50 percent red (2.5YR 4/6) and 50 percent yellowish red (5YR 4/6) sandy clay loam; many medium prominent reddish yellow (7.5YR 6/8) mottles; massive; firm; 2 percent cobbles and 8 percent gravel; very strongly acid.
Cr—41 to 60 inches; soft, weathered amphibolite and/or igneous and metamorphic rock.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to soft bedrock: 40 to 60 inches
Content and size of rock fragments: 0 to 9 percent gravel and 0 to 2 percent cobbles in the A horizon and 0 to 6 percent gravel and 0 to 2 percent cobbles in the B and C horizons
Reaction: Very strongly acid to slightly acid

A or Ap horizon:
Color—hue of 2.5YR or 5YR, value of 3, and chroma of 2 to 6
Texture—sandy loam or sandy clay loam

Bt horizon:
Color—hue of 2.5YR, value of 3, and chroma of 4 to 8; values may range to 4 in the lower part of the Bt horizon
Texture—clay loam or clay

BC horizon (where present):
Color—hue of 2.5YR, value of 3, and chroma of 4 to 8
Texture—sandy clay loam, silty clay loam, or sandy loam

C horizon:
Color—hue of 2.5YR to 7.5YR, value of 3 to 5, and chroma of 4 to 8
Texture—loamy sand, sandy loam, sand, and sandy clay loam

Cr horizon:
Type of bedrock—soft, highly weathered basic crystalline rock

Hard Labor Series

Landform: Hills
Parent material: Residuum weathered from granite and gneiss
Drainage class: Moderately well drained
Permeability class: Slow
Depth class: Very deep
Slope range: 2 to 10 percent
Taxonomic classification: Fine, kaolinitic, thermic Oxyaquic Kanhapludults

Geographically Associated Soils

- Cecil soils, which are well drained and have a redder subsoil than the Hard Labor soils
- Appling soils, which are well drained

Typical Pedon

Hard Labor sandy loam, in an area of Appling-Hard Labor complex, 2 to 6 percent slopes; in Butts County, Georgia, located 2.8 miles north of Jackson, Georgia, on Georgia Highway 36 to Old Bethel Road, and 1,000 feet southwest into open field; Jackson, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 19 minutes 55 seconds N. and long. 83 degrees 58 minutes 01 second W.

A—0 to 9 inches; dark brown (10YR 3/3) sandy loam; weak medium granular structure; very friable; many fine and medium roots; 1 percent cobbles and 3 percent gravel; strongly acid; clear smooth boundary.

BE—9 to 15 inches; yellowish brown (10YR 5/4) sandy clay loam; weak medium granular structure; friable; common fine roots; 1 percent gravel; strongly acid; clear smooth boundary.

Bt1—15 to 26 inches; yellowish brown (10YR 5/8) clay loam; weak medium subangular blocky structure; firm; few fine roots; common distinct clay films; 2 percent gravel; strongly acid; gradual wavy boundary.

Bt2—26 to 36 inches; yellowish brown (10YR 5/6) clay loam; weak medium subangular blocky structure; firm; common distinct clay films; common medium prominent red (2.5YR 4/6) masses of oxidized iron; 2 percent gravel; strongly acid; gradual wavy boundary.

Bt3—36 to 50 inches; 35 percent yellowish brown (10YR 5/6), 35 percent red (2.5YR 4/6), and 30 percent light brownish gray (10YR 6/2) sandy clay; moderate medium platy structure; firm; common distinct clay films; 2 percent gravel; strongly acid; gradual wavy boundary.

BC—50 to 60 inches; 40 percent red (2.5YR 4/6), 40 percent yellowish brown (10YR 5/8), and 20 percent very pale brown (10YR 7/3) sandy clay loam; moderate medium platy structure; firm; few faint clay films; 2 percent gravel; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches
Depth to bedrock: More than 60 inches
Content of mica flakes: None to common flakes of mica in the A, E, and Bt horizons and few to many flakes of mica in the BC and C horizons
Content and size of rock fragments: 0 to 6 percent gravel in the A and Bt horizons
Reaction: Very strongly acid to moderately acid

A or Ap horizon:
Color—hue of 10YR or 2.5Y, value of 3 or 4, and chroma of 2 to 4
Texture—sandy loam or loamy sand

E horizon (where present):
Color—hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 3 to 6
Texture—sandy loam or loamy sand

BA or BE horizon (where present):
Color—hue of 7.5YR to 2.5Y, value of 5 or 6, and chroma of 3 to 8
Texture—sandy loam or sandy clay loam

Bt horizon:
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8
Texture—clay loam or sandy clay loam

Redoximorphic features—iron depletions in shades of brown and gray and masses of oxidized iron in shades of brown in some pedons

BC horizon:
Color—hue of 2.5YR to 2.5Y, value of 4 to 7, and chroma of 3 to 8
Texture—sandy clay loam or sandy loam
Redoximorphic features—iron depletions in shades of brown and gray and masses of oxidized irons in shades of red and brown

C horizon (where present):
Color—similar in color to the BC horizon; masses and streaks of white stripped kaolinite in some pedons
Texture—loamy saprolite
Redoximorphic features—iron depletions in shades of brown and gray and masses of oxidized irons in shades of red and brown

Hiwassee Series

Landform: High terraces
Parent material: Old alluvium
Drainage class: Well drained
Permeability class: Moderate
Depth class: Very deep
Slope range: 2 to 10 percent
Taxonomic classification: Fine, kaolinitic, thermic Rhodic Kanhapludults

Geographically Associated Soils

- Cecil soils, which do not have a dark red subsoil
- Appling soils, which have a yellower subsoil than the Hiwassee soils

Typical Pedon

Hiwassee sandy loam, 2 to 6 percent slopes; in Fulton County, Georgia, located 2.0 miles west of Suwanee, Georgia, about 1,900 feet south of McGinnis Ferry Road (county line), and 3,300 feet north of the Chattahoochee River; Suwanee, Georgia, 7.5-minute USGS topographic quadrangle; lat. 34 degrees 02 minutes 44 seconds N. and long. 84 degrees 06 minutes 59 seconds W.

Ap—0 to 6 inches; dark reddish brown (5YR 3/3) sandy loam; moderate fine granular structure; friable; common very fine and fine roots; 3 percent gravel; neutral; clear wavy boundary.
Bt1—6 to 22 inches; dark red (2.5YR 3/6) sandy clay; weak fine and medium subangular blocky structure; friable; few very fine roots; common distinct clay films; 2 percent gravel; neutral; clear smooth boundary.
Bt2—22 to 35 inches; dark red (2.5YR 3/6) clay loam; weak medium subangular blocky structure; friable; few very fine and fine roots; common distinct clay films; 2 percent gravel; moderately acid; gradual smooth boundary.
BC1—35 to 59 inches; dark red (2.5YR 3/6) sandy clay loam; weak medium subangular blocky structure; friable; few faint clay films; 5 percent gravel; moderately acid; clear smooth boundary.
BC2—59 to 80 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; 5 percent gravel; strongly acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches
Depth to bedrock: More than 60 inches

Content and size of rock fragments: 0 to 8 percent gravel in the A horizon and 0 to 4 percent gravel in the Bt and BC horizons
Reaction: Very strongly acid to slightly acid

A or Ap horizon:
Color—hue of 7.5YR, value of 2 or 3, and chroma of 2 to 6
Texture—sandy loam or sandy clay loam

Bt horizon:
Color—hue of 2.5YR, value of 3, and chroma of 2 to 6
Texture—clay loam or sandy clay

BC horizon:
Color—hue of 2.5YR, value 3 or 4, and chroma of 4 to 8
Texture—sandy clay loam or loam

C horizon (where present):
Color—hue of 5YR, value of 3 to 5, and chroma of 4 to 8
Texture—sandy loam

Lloyd Series

Landform: Hills
Parent material: Residuum weathered from igneous and metamorphic rock and/or residuum weathered from amphibolite
Drainage class: Well drained
Permeability class: Moderate
Depth class: Very deep
Slope range: 6 to 15 percent
Taxonomic classification: Fine, kaolinitic, thermic Rhodic Kanhapludults

Geographically Associated Soils

- Pacolet soils, which do not have a dark red subsoil
- Madison soils, which do not have a dark red subsoil
- Cecil soils, which do not have a dark red subsoil

Typical Pedon

Lloyd sandy loam, in an area of Lloyd-Gwinnett complex, 6 to 15 percent slopes, moderately eroded; in Fulton County, Georgia, located 1,900 feet south of Alpharetta business area, about 2,000 feet east of Old Roswell Road, and 200 feet west of power line; Roswell, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 03 minutes 07 seconds N. and long. 84 degrees 18 minutes 32 seconds W.

A—0 to 4 inches; dark reddish brown (5YR 3/3) sandy loam; moderate fine granular structure; friable; many very fine, fine, and medium and common coarse roots; 3 percent cobbles and 6 percent gravel; moderately acid; clear smooth boundary.
Bt—4 to 25 inches; dark red (2.5YR 3/6) clay loam; moderate medium subangular blocky structure; friable; common very fine, fine, and medium and few coarse roots; common prominent clay films; 6 percent cobbles and 8 percent gravel; moderately acid; clear smooth boundary.
BC—25 to 40 inches; dark reddish brown (5YR 3/4) sandy clay loam; moderate medium subangular blocky structure; friable; few very fine and fine roots; common distinct clay films; few fine black (10YR 2/1) iron-manganese masses; 1 percent cobbles and 6 percent gravel; moderately acid; clear smooth boundary.
C1—40 to 48 inches; reddish brown (5YR 4/4) sandy loam; weak fine subangular blocky structure; friable; very few faint clay films; common fine black (10YR 2/1)

iron-manganese masses; 1 percent cobbles and 8 percent gravel; moderately acid; clear smooth boundary.

C2—48 to 59 inches; brown (7.5YR 4/4) loamy fine sand; massive; friable; very few faint clay films; many medium black (10YR 2/1) iron-manganese masses; 1 percent cobbles and 8 percent gravel; moderately acid; clear smooth boundary.

C3—59 to 67 inches; reddish brown (5YR 5/4) sandy loam; weak medium subangular blocky structure; friable; very few faint clay films; 8 percent gravel; moderately acid; clear smooth boundary.

C4—67 to 80 inches; yellowish red (5YR 4/6) and (5YR 5/8) sandy loam; weak fine subangular blocky structure; friable; very few faint clay films; 3 percent gravel; moderately acid.

Range in Characteristics

Thickness of the solum: 40 to more than 60 inches
Content and size of rock fragments: 0 to 15 percent gravel and 0 to 10 percent cobbles in the A horizon, 0 to 20 percent gravel and 0 to 25 percent cobbles in the B horizons, and 0 to 10 percent gravel and 0 to 2 percent cobbles in the C horizons
Reaction: Very strongly acid to slightly acid

A or Ap horizon:
Color—hue of 2.5YR or 5YR, value of 2 to 4, and chroma of 2 to 6
Texture—sandy loam or sandy clay loam

Bt horizon:
Color—hue of 2.5YR, value of 2 or 3, and chroma of 4 to 8; value of 4 in lower part of Bt horizon in some pedons
Texture—clay loam or clay

BC horizon (where present):
Color—hue of 2.5YR, value of 4 or 5, and chroma of 4 to 8
Texture—sandy clay loam, silty clay loam, or sandy loam

C horizon:
Color—hue of 2.5YR to 7.5YR, value of 3 to 5, and chroma of 4 to 8
Texture—loamy sand, sandy loam, sand, or sandy clay loam

Louisburg Series

Landform: Hills
Parent material: Residuum weathered from granite and gneiss
Drainage class: Well drained
Permeability class: Rapid
Depth class: Very deep
Slope range: 10 to 35 percent
Taxonomic classification: Coarse-loamy, mixed, semiactive, thermic Typic Hapludults

Geographically Associated Soils

- Rion soils, which have a fine-loamy particle-size control section
- Madison soils, which have a fine particle-size control section and have a redder subsoil than the Louisburg soils
- Ashlar soils, which have hard bedrock at a depth of 20 to 40 inches

Typical Pedon

Louisburg sandy loam, in an area of Rion-Louisburg complex, 10 to 20 percent slopes, bouldery; in Fulton County, Georgia, located 1.0 mile south of Ben Hill, Georgia, about 1,500 feet west of Fairburn Road, and 200 feet south of power line;

Ben Hill, Georgia, 7.5-minute USGS topographic quadrangle; lat. 34 degrees 40 minutes 29 seconds N. and long. 84 degrees 31 minutes 11 seconds W.

A—0 to 3 inches; olive brown (2.5Y 4/4) sandy loam; moderate fine granular structure; very friable; common fine and few medium and coarse roots; 2 percent cobbles and 11 percent gravel; moderately acid; clear smooth boundary.

BE—3 to 14 inches; light olive brown (2.5Y 5/4) loamy sand; weak fine granular structure; very friable; common fine and medium roots; 2 percent cobbles and 10 percent gravel; moderately acid; clear smooth boundary.

Bt—14 to 26 inches; yellowish brown (10YR 5/6) sandy loam; weak fine subangular blocky structure; friable; few fine, medium, and coarse roots; very few faint clay films on bottom faces of peds; few fine mica flakes in matrix; 2 percent cobbles and 10 percent gravel; moderately acid; clear smooth boundary.

BC—26 to 38 inches; 90 percent yellowish brown (10YR 5/6) and 10 percent light gray (2.5Y 7/2) coarse sandy loam; weak medium subangular blocky structure; friable; few coarse roots; common fine mica flakes in matrix; 2 percent cobbles and 5 percent gravel; strongly acid; clear smooth boundary.

C1—38 to 50 inches; strong brown (7.5YR 5/8), light gray (7.5YR 7/1), and brownish yellow (10YR 6/6) loamy sand; massive; friable; few very fine roots; common fine mica flakes in matrix; 1 percent cobbles and 4 percent gravel; moderately acid; clear smooth boundary.

C2—50 to 71 inches; yellow (10YR 7/6) and very dark grayish brown (10YR 3/2) loamy sand; massive; friable; few very fine roots; common fine mica flakes in matrix; moderately acid; clear smooth boundary.

Cr—71 to 80 inches; soft, weathered granite.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to Bedrock: More than 60 inches
Content and size of rock fragments: 0 to 30 percent gravel and 0 to 10 percent cobbles in the A horizon, 0 to 35 percent gravel and 0 to 10 percent cobbles in the B horizons, and 0 to 10 percent gravel and 0 to 2 percent cobbles in the C horizons
Rock fragments at the surface: Up to 0.1 percent boulders; class 1
Reaction: Very strongly acid to moderately acid

A horizon:
Color—hue of 10YR, value of 3 or 4, and chroma of 2 to 4
Texture—sandy loam

E horizon (where present):
Color—hue of 10YR, value of 3 to 6, and chroma of 2 to 4
Texture—sandy loam

Bt horizon:
Color—hue of 5YR to 10YR, value of 4 to 7, and chroma of 4 to 8
Texture—sandy loam

BC horizon (where present):
Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 or 6
Texture—sandy loam

C horizon (where present):
Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 or 6
Texture—loamy sand saprolite

Cr horizon:
Type of bedrock—soft, weathered granite

Madison Series

Landform: Hills
Parent material: Residuum weathered from mica schist and/or residuum weathered from igneous and metamorphic rock
Drainage class: Well drained
Permeability class: Moderate
Depth class: Very deep
Slope range: 2 to 10 percent
Taxonomic classification: Fine, kaolinitic, thermic Typic Kanhapludults

Geographically Associated Soils

- Saw soils, which have hard bedrock at a depth of 20 to 40 inches and contain less mica than the Madison soils
- Pacolet soils, which contain less mica than the Madison soils
- Grover soils, which have a fine-loamy particle-size control section
- Cecil soils, which contain less mica than the Madison soils
- Bethlehem soils, which have soft bedrock at a depth of 20 to 40 inches

Typical Pedon

Madison sandy loam, in an area of Madison-Bethlehem complex, 2 to 6 percent slopes, moderately eroded; in Jasper County, Georgia, located 5.3 miles northeast of Monticello, Georgia, on Georgia Highway 83 and about 300 feet west of road; Monticello NE, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 21 minutes 51 seconds N. and long. 83 degrees 37 minutes 42 seconds W.

A—0 to 5 inches; yellowish brown (10YR 5/4) sandy loam; weak fine granular structure; very friable; common fine roots; few fine mica flakes; 2 percent gravel; strongly acid; clear smooth boundary.
Bt1—5 to 10 inches; yellowish red (5YR 5/6) sandy clay; weak medium subangular blocky structure; firm; few fine roots; common distinct clay films; few fine mica flakes; 2 percent gravel; strongly acid; gradual wavy boundary.
Bt2—10 to 17 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; firm; few fine roots; common distinct clay films; common fine mica flakes; 2 percent gravel; strongly acid; gradual wavy boundary.
Bt3—17 to 24 inches; red (2.5YR 4/6) sandy clay; moderate medium subangular blocky structure; firm; few fine roots; few faint and distinct clay films; many fine mica flakes; 2 percent gravel; strongly acid; gradual wavy boundary.
BC—24 to 38 inches; red (2.5YR 4/6) sandy clay loam; few medium prominent strong brown (7.5YR 5/8) and few medium prominent yellow (10YR 7/6) mottles; weak medium subangular blocky structure; friable; few fine roots; few distinct and faint clay films; many fine mica flakes; strongly acid; gradual wavy boundary.
C1—38 to 50 inches; 34 percent yellowish red (5YR 5/8), 33 percent reddish yellow (7.5YR 6/8), and 33 percent brown (10YR 4/3) sandy clay loam; massive; very friable; many fine and medium mica flakes; strongly acid; gradual wavy boundary.
C2—50 to 60 inches; 34 percent brown (10YR 4/3), 33 percent reddish yellow (7.5YR 6/8), and 33 percent yellowish red (5YR 5/8) sandy loam; massive; very friable; many fine mica flakes; strongly acid.

Range in Characteristics

Thickness of the solum: 20 to 50 inches
Depth to bedrock: More than 72 inches
Content of mica flakes: Few to many in the A, E, BE, and BA horizons, common or many in the Bt horizon, and many in the BC and C horizons

Content and size of rock fragments: 0 to 5 percent gravel and cobbles throughout
Reaction: Very strongly acid to moderately acid, except where lime has been applied

A or Ap horizon:
Color—hue of 2.5YR to 10YR, value of 3 to 5, and chroma of 3 to 8
Texture—sandy loam or loam

E horizon (where present):
Color—hue of 7.5YR or 10YR, value of 3 to 5, and chroma of 3 to 6
Texture—sandy loam

BA or BE horizons (where present):
Color—hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 3 to 8
Texture—sandy clay loam

Bt horizon:
Color—hue of 2.5YR or 5YR, value of 4 to 6, and chroma of 3 to 8
Texture—clay loam, clay, or sandy clay loam

BC horizon (where present):
Color—hue of 5YR, value of 4 to 6, and chroma of 3 to 8; or variegated in shades of red and brown
Texture—sandy clay loam or clay loam

C horizon:
Color—hue of 2.5YR or 5YR, value of 4 to 6, and chroma of 2 to 8; or variegated in shades of red, brown, and yellow
Texture—sandy loam, loamy sandy, or sandy clay loam saprolite

Mecklenburg Series

Landform: Hills
Parent material: Residuum weathered from amphibolite
Drainage class: Well drained
Permeability class: Slow
Depth class: Very deep
Slope range: 6 to 15 percent
Taxonomic classification: Fine, mixed, active, thermic Ultic Hapludalfs

Geographically Associated Soils

- Wynott soils, which have soft bedrock at a depth of 20 to 40 inches and have a yellower subsoil than the Mecklenburg soils
- Wilkes soils, which have a loamy particle-size control section and have soft bedrock within 10 to 20 inches
- Enon soils, which have a yellower subsoil than the Mecklenburg soils

Typical Pedon

Mecklenburg sandy loam, in an area of Wynott-Mecklenburg-Wilkes complex, 6 to 15 percent slopes; in Coosa County, Alabama, located 2.0 miles southeast of Unity, Alabama; 200 feet north and 900 feet west of the southwest corner of section 9; T. 23 N.; R. 17 E.; Mitchell Dam, Alabama, 7.5-minute USGS topographic quadrangle; lat. 32 degrees 58 minutes 38 seconds N. and long. 86 degrees 24 minutes 07 seconds W.

Ap—0 to 6 inches; brown (7.5YR 5/4) sandy loam; moderate medium granular structure; friable; common fine and medium roots; 5 percent cobbles and 8 percent gravel; moderately acid; abrupt smooth boundary.

Bt1—6 to 21 inches; yellowish red (5YR 5/6) clay; strong medium subangular blocky structure; firm; common fine roots; common prominent red (2.5YR 4/6) clay films; 1 percent cobbles and 3 percent gravel; slightly acid; gradual smooth boundary.

Bt2—21 to 28 inches; yellowish red (5YR 5/6) clay; moderate medium subangular blocky structure; firm; few medium roots; common prominent red (2.5YR 4/6) clay films; 1 percent cobbles and 3 percent gravel; slightly acid; clear smooth boundary.

BC—28 to 38 inches; 35 percent yellowish red (5YR 4/6), 35 percent red (2.5YR 4/6), and 30 percent brownish yellow (10YR 6/6) loam; weak medium subangular blocky structure; firm; few fine roots; 2 percent gravel; slightly acid; gradual irregular boundary.

C—38 to 80 inches; dark greenish gray (5GY 4/1), strong brown (7.5YR 5/8), and light yellowish brown (10YR 6/4) sandy loam; friable; 2 percent gravel.

Range in Characteristics

Thickness of the solum: 20 to 58 inches
Depth to bedrock: More than 60 inches
Content and size of rock fragments: 0 to 20 percent gravel and 0 to 10 percent cobbles in the A horizon, 0 to 10 percent gravel and 0 to 10 percent cobbles in the B horizons, and 0 to 10 percent gravel in the C horizon
Reaction: Strongly acid to slightly acid in the A horizon and moderately acid to neutral in the B and C horizons

A or Ap horizon:
Color—hue of 7.5YR, value of 3 or 4, and chroma of 2 to 4
Texture—sandy loam or loam

BE or BA horizon (where present):
Color—hue of 5YR, value of 3 to 6, and chroma of 4 to 8
Texture—sandy loam or sandy clay loam

Bt horizon:
Color—hue of 2.5YR or 5YR, value of 3 to 6, and chroma of 4 to 8
Texture—clay
Mottles—few or common in shades of brown, yellow, and red in lower Bt horizon in most pedons

BC horizon:
Color—hue of 5YR or 7.5YR, value of 4 to 7, and chroma of 4 to 8
Texture—sandy clay loam or clay loam
Mottles—in shades of brown, yellow, red, and pink

C horizon:
Color—variegated in shades of red, yellow, and brown
Texture—sandy loam saprolite

Mountain Park Series

Landform: Hills
Parent material: Residuum weathered from mica schist
Drainage class: Well drained
Permeability class: Moderate
Depth class: Moderately deep
Slope range: 2 to 60 percent
Taxonomic classification: Fine-loamy, micaceous, thermic Typic Hapludults (fig. 5)

Figure 5.—Profile of a Mountain Park soil.

Geographically Associated Soils

- Rion soils, which do not have bedrock within 60 inches and contain less mica than the Mountain Park soils
- Bethlehem soils, which have a fine particle-size control section
- Madison soils, which have a fine particle-size control section and do not have bedrock within 60 inches
- Louisburg soils, which have a coarse-loamy particle-size control section and do not have bedrock within 60 inches
- Grover soils, which do not have bedrock within 60 inches

Typical Pedon

Mountain Park gravelly sandy loam, in an area of Grover-Mountain Park complex, 10 to 20 percent slopes, stony; in Fulton County, Georgia, located 200 feet east of Juniper Street in Mountain Park, Georgia, and 700 feet north of Rocky Creek;

Mountain Park, Georgia, 7.5-minute USGS topographic quadrangle; lat. 34 degrees 04 minutes 57 seconds N. and long. 84 degrees 24 minutes 19 seconds W.

A—0 to 4 inches; dark yellowish brown (10YR 3/4) gravelly sandy loam; weak fine granular structure; friable; common very fine and fine roots; common fine mica flakes; 3 percent cobbles and 7 percent gravel; very strongly acid; clear smooth boundary.
BE—4 to 10 inches; brown (7.5YR 4/4) gravelly sandy loam; weak fine subangular blocky structure; firm; common very fine, fine, and medium roots; many fine mica flakes; 2 percent cobbles and 8 percent gravel; very strongly acid; clear wavy boundary.
Bt—10 to 23 inches; brown (7.5YR 4/4) sandy clay loam; moderate fine subangular blocky structure; firm; common very fine, fine, and medium roots; common distinct clay films; many fine mica flakes; 12 percent gravel; strongly acid; clear wavy boundary.
BC—23 to 32 inches; yellowish red (5YR 4/6) sandy loam; weak fine subangular blocky structure; firm; few very fine, fine, and medium roots; few faint clay films; many fine mica flakes; 2 percent gravel; strongly acid; clear wavy boundary.
Cr—32 to 46 inches; soft, weathered mica schist.
C—46 to 55 inches; strong brown (7.5YR 4/6) sandy loam; massive; friable; many fine mica flakes; strongly acid; clear wavy boundary.
C´r—55 to 65 inches; soft, weathered mica schist.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to soft bedrock: 20 to 40 inches
Content of mica flakes: Common to many in the A, E, and BE horizons and many in the B and C horizons
Content and size of rock fragments: 0 to 15 percent gravel and 0 to 12 percent cobbles in the A horizon, 0 to 15 percent gravel in the B horizons, and 0 to 2 percent gravel in the C horizons
Rock fragments at the surface: Up to 0.1 percent stones; class 1
Reaction: Very strongly acid to slightly acid in the A and E horizons and very strongly acid to moderately acid in the Bt, BC, and C horizons

A horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 4, and chroma of 2 to 4
Texture—sandy loam, loamy sand, or sandy clay loam

E horizon (where present):
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8
Texture—sandy loam or loamy sand

BE horizon (where present):
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—sandy loam or sandy clay loam

Bt horizon:
Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—sandy loam, sandy clay loam, or clay loam

BC horizon (where present):
Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—sandy loam or sandy clay loam

C horizon (where present):
Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 2 to 6
Texture—loamy sand, sandy loam, or sandy clay loam

Cr horizon:
Type of bedrock—soft, weathered mica schist

Pacolet Series

Landform: Hills
Parent material: Residuum weathered from granite and gneiss
Drainage class: Well drained
Permeability class: Moderate
Depth class: Very deep
Slope range: 2 to 25 percent
Taxonomic classification: Fine, kaolinitic, thermic Typic Kanhapludults

Geographically Associated Soils

- Saw soils, which have hard bedrock at a depth of 20 to 40 inches
- Rion soils, which have a fine-loamy particle-size control section
- Madison soils, which contain more mica than the Pacolet soils
- Grover soils, which have a fine-loamy particle-size control section and contain more mica than the Pacolet soils
- Cecil soils, which have a thicker subsoil than the Pacolet soils
- Appling soils, which have a yellower subsoil than the Pacolet soils

Typical Pedon

Pacolet sandy loam, 10 to 15 percent slopes, moderately eroded; in DeKalb County, Georgia, located 1.75 miles northwest of Lithonia High School, 1.0 mile north of U.S. Highway 278, and 1.0 mile southeast of Redan School; Redan, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 43 minutes 58 seconds N. and long. 84 degrees 07 minutes 44 seconds W.

Ap—0 to 5 inches; brown (7.5YR 4/4) sandy loam; weak fine granular structure; very friable; common fine and medium roots; 3 percent cobbles and 5 percent gravel; strongly acid; abrupt smooth boundary.

BE—5 to 10 inches; yellowish red (5YR 5/6) sandy clay loam; weak fine subangular blocky structure; friable; common fine and few medium roots; 3 percent cobbles and 8 percent gravel; strongly acid; clear smooth boundary.

Bt1—10 to 18 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; friable; common fine and few medium roots; common prominent clay films on all faces of peds; few fine mica flakes; 1 percent cobbles and 6 percent gravel; strongly acid; gradual smooth boundary.

Bt2—18 to 26 inches; red (2.5YR 4/6) clay; moderate medium subangular blocky structure; firm; few fine roots; common prominent clay films; few fine mica flakes; 1 percent cobbles and 6 percent gravel; very strongly acid; clear wavy boundary.

BC—26 to 36 inches; red (2.5YR 4/6) sandy clay loam; weak medium and coarse subangular blocky structure; friable; few fine roots; few distinct clay films; few fine distinct yellowish brown (10YR 5/6) and strong brown (7.5YR 5/6) masses of oxidized iron; few fine mica flakes; 1 percent cobbles and 8 percent gravel; very strongly acid; gradual wavy boundary.

C1—36 to 46 inches; 40 percent yellowish red (5YR 5/6), 30 percent strong brown (7.5YR 5/6), and 30 percent yellowish brown (10YR 5/6) sandy loam; massive; friable; very strongly acid; clear wavy boundary.

C2—46 to 58 inches; 50 percent yellowish red (5YR 5/6), 30 percent yellowish brown (10YR 5/6), and 20 percent strong brown (7.5YR 5/6) sandy loam; massive; friable; very strongly acid; abrupt wavy boundary.

C3—58 to 66 inches; 50 percent weak red (2.5YR 5/2), 30 percent red (2.5YR 4/6), and 20 percent yellowish brown (10YR 5/6) sandy loam; massive; friable; very strongly acid.

Range in Characteristics

Thickness of the solum: 10 to 24 inches
Depth to bedrock: More than 60 inches
Content of mica flakes: Few or common in the solum and few to many in the C horizon
Content and size of rock fragments: 0 to 15 percent gravel and 0 to 5 percent cobbles in the A horizon and 0 to 12 percent gravel and 0 to 5 percent cobbles in the B horizons
Rock fragments at the surface: Up to 0.1 percent boulders when associated with the Saw soil; class 1
Reaction: Very strongly acid to slightly acid

A horizon:
Color—hue of 5YR to 10YR, value of 3 to 5, and chroma of 2 to 4
Texture—sandy loam or sandy clay loam

BA or BE horizon (where present):
Color—hue of 5YR or 7.5YR, value of 4 or 5, and chroma of 4 or 6
Texture—sandy clay loam

Bt horizon:
Color—hue of 2.5YR, value of 4 or 5, and chroma of 6 or 8
Texture—clay loam, clay, or sandy clay
Mottles—in shades of yellow or brown in lower part

BC horizon:
Color—hue of 2.5YR or 5YR, value of 4 or 5, and chroma of 6 or 8; or variegated in shades of red, yellow, and brown
Texture—sandy clay loam

C horizon:
Color—variegated in shades of red, yellow, and brown
Texture—sandy loam saprolite

Rion Series

Landform: Hills
Parent material: Residuum weathered from granite and gneiss
Drainage class: Well drained
Permeability class: Moderate
Depth class: Very deep
Slope range: 10 to 35 percent
Taxonomic classification: Fine-loamy, mixed, semiactive, thermic Typic Hapludults

Geographically Associated Soils

- Pacolet soils, which have a fine particle-size control section
- Madison soils, which have a fine particle-size control section and contain more mica than the Rion soils
- Louisburg soils, which have a coarse-loamy particle-size control section
- Cecil soils, which have a fine particle-size control section

- Ashlar soils, which have a coarse-loamy particle-size control section and have hard bedrock at a depth of 20 to 40 inches

Typical Pedon

Rion sandy loam, 10 to 15 percent slopes; in Newton County, Georgia, located 500 feet north of Murder Creek bridge on Georgia Highway 229, about 2.0 miles northwest on a county road, 3,000 feet east-northeast of the road; Farrar, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 26 minutes 16 seconds N. and long. 83 degrees 40 minutes 33 seconds W.

A—0 to 7 inches; strong brown (7.5YR 4/6) sandy loam; weak fine granular structure; very friable; common fine roots; 2 percent cobbles and 11 percent gravel; very strongly acid; gradual wavy boundary.

Bt1—7 to 20 inches; yellowish red (5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few fine and medium roots; common distinct clay films; 1 percent cobbles and 3 percent gravel; very strongly acid; gradual wavy boundary.

Bt2—20 to 36 inches; yellowish red (5YR 4/6) sandy clay loam; common medium distinct strong brown (7.5YR 5/6) mottles; weak medium subangular blocky structure; friable; common faint clay films; 1 percent cobbles and 3 percent gravel; very strongly acid; gradual wavy boundary.

C—36 to 60 inches; 35 percent yellowish red (5YR 4/6), 35 percent strong brown (7.5YR 5/6), and 30 percent brownish yellow (10YR 6/8) sandy loam; massive; very friable; 1 percent cobbles and 4 percent gravel; very strongly acid.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to bedrock: More than 60 inches
Content and size of rock fragments: 0 to 12 percent gravel and 0 to 10 percent cobbles in the A horizon, 0 to 6 percent gravel and 0 to 3 percent cobbles in the B horizons, and 0 to 12 percent gravel and 0 to 12 percent cobbles in the C horizon
Rock fragments at the surface: Up to 0.1 percent stones and boulders when associated with Ashlar or Louisburg soils; class 1
Reaction: Very strongly acid to slightly acid throughout

A horizon:
Color—hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 2 to 6
Texture—sandy loam or loamy sand

E or BE horizon (where present):
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 8
Texture—sandy loam, sandy clay loam, or loamy sand

Bt horizon:
Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—sandy clay loam or clay loam
Mottles—in shades of red, brown, yellow, and gray in the lower part

BC horizon (where present):
Color—hue of 2.5YR to 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—sandy loam or sandy clay loam
Mottles—in shades of red, brown, yellow, gray, and white

C horizon (where present):
Color—variegated in shades of red, brown, yellow, gray, and white
Texture—sandy loam or loamy sand

Saw Series

Landform: Hills
Parent material: Residuum weathered from granite and gneiss
Drainage class: Well drained
Permeability class: Moderate
Depth class: Moderately deep
Slope range: 2 to 10 percent
Taxonomic classification: Fine, kaolinitic, thermic Typic Kanhapludults

Geographically Associated Soils

- Rion soils, which have a fine-loamy particle-size control section and do not have bedrock within 60 inches
- Pacolet soils, which do not have bedrock within 60 inches
- Cecil soils, which do not have bedrock within 60 inches

Typical Pedon

Saw sandy loam, in an area of Pacolet-Saw complex, 6 to 10 percent slopes, moderately eroded, bouldery; in Fulton County, Georgia, located 2,400 feet south of Rivertown, 1,200 feet southwest of Rivertown Road, 30 feet east of Pace Road, and 2,750 feet east of State Highway 70; Palmetto, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 36 minutes 32 seconds N. and long. 84 degrees 44 minutes 09 seconds W.

A—0 to 5 inches; dark yellowish brown (10YR 4/4) sandy loam; weak fine granular structure; friable; many very fine and fine and common medium and coarse roots; 3 percent cobbles and 10 percent gravel; strongly acid.
Bt—5 to 17 inches; red (2.5YR 4/6) sandy clay; moderate medium subangular blocky structure; firm; common very fine and fine and few medium roots; common prominent clay films; 2 percent cobbles and 6 percent gravel; strongly acid.
BC—17 to 22 inches; red (2.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; firm; few very fine and medium roots; few faint clay films; 1 percent cobbles and 8 percent gravel; strongly acid.
R—22 inches; hard, unweathered granite and gneiss.

Range in Characteristics

Thickness of the solum: 19 to 33 inches
Depth to hard bedrock: 20 to 40 inches
Content and size of rock fragments: 0 to 35 percent gravel and 0 to 10 percent cobbles in the A horizon and 0 to 15 percent gravel and 0 to 5 percent cobbles in the B horizons
Rock fragments at the surface: Up to 0.1 percent boulders; class 1
Reaction: Very strongly acid to moderately acid

A horizon:
Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 2 to 6
Texture—sandy loam or loamy sand

E horizon (where present):
Color—hue of 10YR, value of 5, and chroma of 3
Texture—sandy loam

BE or BA horizon (where present):
Color—hue of 5YR to 10YR, value of 4 or 5, and chroma of 4 or 6
Texture—sandy loam or sandy clay loam

Bt horizon:
Color—hue of 2.5YR, value of 4 to 6, and chroma of 6 or 8
Texture—clay or clay loam

BC horizon (where present):
Color—hue of 2.5YR or 5YR, value of 4 to 6, and chroma of 6 or 8
Texture—sandy clay loam or sandy loam

R layer:
Type of bedrock—hard, unweathered metamorphic rock, such as granite

Toccoa Series

Landform: Flood plains
Parent material: Coarse-loamy alluvium
Drainage class: Moderately well drained
Permeability class: Moderately rapid
Depth class: Very deep
Slope range: 0 to 2 percent
Taxonomic classification: Coarse-loamy, mixed, active, nonacid, thermic Typic Udifluvents

Geographically Associated Soils

- Wehadkee soils, which have a fine-loamy particle-size control section and are poorly drained or very poorly drained
- Congaree soils, which have a fine-loamy particle-size control section
- Chewacla soils, which have a fine-loamy particle-size control section and are somewhat poorly drained
- Cartecay soils, which are somewhat poorly drained
- Buncombe soils, which have a sandy particle-size control section

Typical Pedon

Toccoa sandy loam, in an area of Cartecay-Toccoa complex, 0 to 2 percent slopes, occasionally flooded; in Fulton County, Georgia, located 2.0 miles northwest of Crabapple, 1,200 feet south and 2,100 feet east of New Providence Road on the north side of Copper Sandy Creek; Roswell, Georgia, 7.5-minute USGS topographic quadrangle; lat. 34 degrees 06 minutes 49 seconds N. and long. 84 degrees 21 minutes 46 seconds W.

Ap—0 to 6 inches; dark brown (7.5YR 3/3) sandy loam; moderate fine granular structure; friable; common very fine and fine and few medium roots; many fine mica flakes; 2 percent gravel; slightly acid; gradual smooth boundary.
C1—6 to 16 inches; reddish brown (5YR 4/4) sandy loam; massive; friable; common very fine and few coarse roots; common fine mica flakes; 1 percent gravel; moderately acid; clear smooth boundary.
C2—16 to 29 inches; reddish brown (5YR 4/4) loamy sand; massive; friable; common very fine and medium roots; common fine flakes of mica; slightly acid; clear smooth boundary.
C3—29 to 34 inches; reddish brown (5YR 4/4) sandy loam; massive; firm; common very fine, fine, and medium roots; many fine mica flakes; slightly acid; clear smooth boundary.
C4—34 to 49 inches; brown (10YR 5/3) and dark yellowish brown (10YR 4/4) sandy loam; massive; firm; few fine and medium roots; few fine distinct dark yellowish brown (10YR 4/6) masses of oxidized iron; many fine mica flakes; few coarse carbonate masses; slightly acid; clear smooth boundary.

C5—49 to 67 inches; brown (10YR 4/3) sandy loam; massive; firm; few fine and medium roots; common medium prominent yellowish red (5YR 4/6) masses of oxidized iron; many fine mica flakes; moderately acid; clear smooth boundary.

C6—67 to 75 inches; yellowish red (5YR 4/6) and brown (10YR 4/3) loamy sand; massive; friable; few fine roots; few fine black (10YR 2/1) moist carbonate masses; few coarse carbonate concretions; moderately acid; clear smooth boundary.

C7—75 to 85 inches; dark grayish brown (10YR 4/2) sand; single grain; friable; few fine roots; few fine prominent red (2.5YR 4/8) masses of oxidized iron; slightly acid.

Range in Characteristics

Content and size of rock fragments: 0 to 5 percent gravel in all horizons
Reaction: Strongly acid to slightly acid
Other distinctive features: Bedding planes and thin strata of sandy or loamy textures throughout the C horizons

A horizon:
Color—hue of 7.5YR or 10YR, value of 3 or 4, and chroma of 3 or 4
Texture—sandy loam or loamy sand

C horizon:
Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 4 to 8
Texture—sandy loam or fine sandy loam; thin strata of contrasting textures in some pedons
Redoximorphic features—iron depletions in shades of olive and gray and masses of oxidized iron in shades of brown, yellow, and red; iron depletions within 30 to 40 inches of the soil surface

Wehadkee Series

Landform: Flood plains
Parent material: Fine-loamy alluvium
Drainage class: Poorly drained
Permeability class: Moderate
Depth class: Very deep
Slope range: 0 to 2 percent
Taxonomic classification: Fine-loamy, mixed, active, nonacid, thermic Fluvaquentic Endoaquepts

Geographically Associated Soils

- Toccoa soils, which have a coarse-loamy particle-size control section and are moderately well drained
- Chewacla soils, which are somewhat poorly drained
- Cartecay soils, which have a coarse-loamy particle-size control section and are somewhat poorly drained

Typical Pedon

Wehadkee silt loam, in an area of Wehadkee-Cartecay complex, 0 to 2 percent slopes, occasionally flooded; in Fulton County, Georgia, located 1.0 mile east-northeast of Georgia Highway 29 and Union City, 1.0 mile northwest of I-85, and 50 feet east of power line right-of-way; Fairburn, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 35 minutes 31 seconds N. and long. 84 degrees 31 minutes 43 seconds W.

A—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam; weak fine granular structure; friable; common very fine and fine roots; moderately acid; clear smooth boundary.
Bg1—5 to 15 inches; dark gray (10YR 4/1) silty clay loam; weak fine subangular blocky structure; friable; few very fine, fine, and medium roots; few fine prominent dark yellowish brown (10YR 4/6) masses of oxidized iron; 2 percent gravel; moderately acid; clear smooth boundary.
Bg2—15 to 25 inches; gray (10YR 5/1) loam; weak fine subangular blocky structure; friable; few very fine roots; few fine prominent yellowish brown (10YR 5/6) masses of oxidized iron; 2 percent gravel; moderately acid; clear smooth boundary.
Cg1—25 to 38 inches; light gray (2.5Y 7/1) sandy loam; massive; friable; common fine prominent yellowish brown (10YR 5/6) masses of oxidized iron; 2 percent gravel; slightly acid; clear smooth boundary.
Cg2—38 to 56 inches; light gray (2.5Y 7/1) sandy clay loam; massive; friable; common fine prominent yellowish brown (10YR 5/6) masses of oxidized iron; 2 percent gravel; neutral.

Range in Characteristics

Thickness of the solum: 20 to more than 60 inches
Depth to iron depletions with chroma of 2 or less: 0 to 10 inches
Reaction: Very strongly acid to neutral; 10-to 40-inch control section is moderately acid to neutral in some part

A horizon:
Color—neutral in hue or hue of 10YR or 2.5Y; value of 3 to 6 and chroma of 1 to 4
Texture—sandy loam, fine sandy loam, or silt loam
Redoximorphic features—soft masses of oxidized iron in shades of red, brown, and yellow in some pedons

Bg horizon:
Color—neutral in hue or hue of 10YR or 2.5Y; value of 4 to 6 and chroma of 1 or 2
Texture—sandy clay loam, sandy loam, loam, sandy clay, or silty clay loam
Redoximorphic features—iron depletions in shades of olive and gray and soft masses of oxidized iron in shades of red, brown, and yellow in some pedons; iron depletions within 10 inches of soil surface

Cg horizon:
Color—neutral in hue or hue of 10YR to 5Y, value of 4 to 7, and chroma of 1 or 2
Texture—sandy loam, loam sand, or sand; stratified layers of sandy, sandy loam, sandy clay loam, or clay loam in some pedons
Redoximorphic features—soft masses of oxidized iron in shades of red, brown, and yellow

Wickham Series

Landform: Stream terraces
Parent material: Old loamy alluvium
Drainage class: Well drained
Permeability class: Moderate
Depth class: Very deep
Slope range: 2 to 6 percent
Taxonomic classification: Fine-loamy, mixed, semiactive, thermic Typic Hapludults

Geographically Associated Soils

- Altavista soils, which are moderately well drained

Typical Pedon

Wickham sandy loam, 2 to 6 percent slopes; in Fulton County, Georgia, located 800 feet west of Cochran Road and 1,000 feet east of the mouth of Camp Creek and the Chattahoochee River; Campbellton, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 40 minutes 14 seconds N. and long. 84 degrees 38 minutes 55 seconds W.

Ap—0 to 7 inches; brown (7.5YR 4/3) sandy loam; weak fine granular structure; friable; common very fine, fine, and medium roots; 1 percent gravel; moderately acid; clear smooth boundary.

BE—7 to 12 inches; dark brown (7.5YR 3/4) sandy loam; weak fine subangular blocky structure; friable; common very fine and fine roots; few fine mica flakes; slightly acid; clear smooth boundary.

Bt1—12 to 38 inches; yellowish red (5YR 4/6) sandy clay loam; moderate medium subangular blocky structure; friable; few very fine and fine roots; common distinct clay films; slightly acid; clear smooth boundary.

Bt2—38 to 54 inches; yellowish red (5YR 4/6) sandy clay loam; weak medium and fine subangular blocky structure; friable; few very fine roots; common distinct clay films; slightly acid; clear smooth boundary.

BC1—54 to 62 inches; strong brown (7.5YR 4/6) sandy clay loam; weak medium subangular blocky structure; friable; few faint clay films; few fine mica flakes; moderately acid; clear smooth boundary.

BC2—62 to 80 inches; strong brown (7.5YR 4/6) sandy loam; weak coarse subangular blocky structure; friable; common very fine, fine, and medium roots; few faint clay films; few fine mica flakes; moderately acid.

Range in Characteristics

Thickness of the solum: 42 to more than 60 inches
Content and size of rock fragments: 0 to 10 percent gravel in the A horizon
Reaction: Very strongly acid to moderately acid

A or Ap horizon:
Color—hue of 5YR to 10YR, value of 4 to 6, and chroma of 2 to 6
Texture—sandy loam, fine sandy loam, loam, or loamy sand

E horizon (where present):
Color—hue of 10YR, value of 4 to 6, and chroma of 2 to 4
Texture—fine sandy loam or loam

BA or BE horizon (where present):
Color—hue of 7.5YR, value of 4, and chroma of 4
Texture—fine sandy loam

Bt horizon:
Color—hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 4 to 8; hue of 2.5YR or 5YR in at least one subhorizon, generally in the upper part
Texture—sandy clay loam, clay loam, or sandy loam

BC horizon:
Color—hue of 2.5YR to 7.5YR, value of 4 to 6, and chroma of 3 to 8
Texture—sandy loam or sandy clay loam

C horizon (where present):
Color—hue of 5YR or 7.5YR, value of 5, and chroma of 6
Texture—loamy sand or sand

Wilkes Series

Landform: Hills
Parent material: Residuum weathered from amphibolite
Drainage class: Well drained
Permeability class: Slow
Depth class: Shallow
Slope range: 6 to 15 percent
Taxonomic classification: Loamy, mixed, active, thermic, shallow Typic Hapludalfs

Geographically Associated Soils

- Wynott soils, which have a fine particle-size control section and soft bedrock at a depth of 20 to 40 inches
- Mecklenburg soils, which do not have bedrock within 60 inches and have a redder subsoil than the Wilkes soils
- Enon soils, which have a fine particle-size control section and do not have bedrock within 60 inches

Typical Pedon

Wilkes sandy loam, in an area of Wynott-Mecklenburg-Wilkes complex, 6 to 15 percent slopes; in Fulton County, Georgia, located 4.0 miles south of Rico, Georgia, on Campbellton-Redwine Road, 2,400 feet east of the Chattahoochee River, and 3,900 feet west of Campbellton-Redwine Road; Rico, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 32 minutes 08 seconds N. and long. 84 degrees 48 minutes 55 seconds W.

Ap—0 to 4 inches; dark brown (10YR 3/3) sandy loam; weak fine granular structure; friable; common fine and few very fine and medium roots; 5 percent cobbles and 8 percent gravel; slightly acid; clear smooth boundary.

Bt—4 to 10 inches; 50 percent dark greenish gray (5GY 3/1) and 50 percent dark yellowish brown (10YR 4/6) sandy clay loam; moderate fine platy structure; firm; few very fine roots; common distinct clay films; 1 percent cobbles and 3 percent gravel; neutral; clear smooth boundary.

C—10 to 18 inches; 50 percent greenish black (5GY 2/1) and 50 percent yellowish brown (10YR 5/6) sandy loam; massive; firm; few very fine roots; 2 percent gravel; slightly acid; clear smooth boundary.

Cr—18 to 58 inches; soft, weathered amphibolite.

R—58 inches; hard, unweathered amphibolite.

Range in Characteristics

Thickness of the solum: 10 to 20 inches
Depth to soft bedrock: 10 to 20 inches
Content and size of rock fragments: 0 to 35 percent gravel in the A, B, and C horizons and 0 to 13 percent cobbles in the A and B horizons
Reaction:. Strongly acid to slightly acid in the upper horizons and moderately acid to mildly alkaline in the lower horizons

A horizon:
Color—hue of 7.5YR to 2.5Y, value of 3 to 5, and chroma of 2 to 6
Texture—sandy loam, loamy sand, or loam

BE horizon (where present):
Color—hue of 10YR, value of 5, and chroma of 4
Texture—loamy sand

Bt horizon:
Color—hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8
Texture—sandy clay loam, clay loam, or loam
Mottles—in shades of black, green, gray, and white

BC horizon (where present):
Color—hue of 7.5YR to 2.5Y, value of 4 or 5, and chroma of 3 to 8
Texture—sandy clay loam or sandy loam
Mottles—in shades of black, green, gray, and white

C horizon (where present):
Color—variegated in shades of black, green, brown, and gray
Texture—sandy clay loam saprolite

Cr horizon:
Type of bedrock—soft, weathered intermediate or mafic crystalline rock

Wynott Series

Landform: Hills
Parent material: Residuum weathered from amphibolite
Drainage class: Well drained
Permeability class: Slow
Depth class: Moderately deep
Slope range: 6 to 15 percent
Taxonomic classification: Fine, mixed, thermic Typic Hapludalfs

Geographically Associated Soils

- Wilkes soils, which have a loamy particle-size control section and soft bedrock within 10 to 20 inches
- Mecklenburg soils, which have a redder subsoil than the Wynott soils and do not have bedrock within 60 inches
- Enon soils, which do not have bedrock within 60 inches

Typical Pedon

Wynott sandy loam, in an area of Wynott-Mecklenburg-Wilkes complex, 6 to 15 percent slopes; in Fulton County, Georgia, located 4.0 miles south of Rico, Georgia, on Campbellton-Redwine Road, about 2,050 feet east of the Chattahoochee River, and 4,300 feet west of Campbellton-Redwine Road; Rico, Georgia, 7.5-minute USGS topographic quadrangle; lat. 33 degrees 32 minutes 09 seconds N. and long. 84 degrees 48 minutes 59 seconds W.

Ap—0 to 7 inches; very dark grayish brown (2.5Y 3/2) sandy loam; moderate fine granular structure; friable; common very fine and fine roots; 5 percent cobbles and 8 percent gravel; slightly acid; clear smooth boundary.
Bt—7 to 20 inches; 60 percent yellowish brown (10YR 5/6) and 40 percent light olive brown (2.5Y 5/4) sandy clay; moderate fine subangular blocky structure; firm; few very fine and fine roots; common prominent clay films; 1 percent cobbles and 3 percent gravel; slightly acid; clear wavy boundary.
C—20 to 30 inches; 50 percent yellowish brown (10YR 5/4) and 50 percent light yellowish brown (2.5Y 6/4) sand; massive; friable; few fine roots; few fine carbonate masses; 2 percent gravel; neutral; clear wavy boundary.
Cr—30 to 42 inches; soft, weathered amphibolite.
R—42 inches; hard, unweathered amphibolite.

Range in Characteristics

Thickness of the solum: 20 to 40 inches
Depth to soft bedrock: 20 to 40 inches
Content and size of rock fragments: 0 to 35 percent gravel, 0 to 25 percent cobbles, and 0 to 25 percent stones in the A horizon, 0 to 8 percent gravel and 0 to 3 percent cobbles in the B horizons, and 0 to 6 percent gravel in the C horizon
Rock fragments at the surface: Up to 0.1 percent boulders when associated with Enon soils; class 1
Reaction: Very strongly acid to slightly acid

A or Ap horizon:
Color—hue of 7.5YR or 10YR, value of 3 to 6, and chroma of 3 to 6
Texture—sandy loam, sandy clay loam, or loamy sand

BE horizon (where present):
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 3 to 6
Texture—sandy loam or sandy clay loam

Bt horizon:
Color—hue of 7.5YR to 2.5Y, value of 4 to 6, and chroma of 4 to 8
Texture—clay loam, clay, or sandy clay
Mottles—in shades of yellow and brown in some pedons

BC horizon (where present):
Color—hue of 7.5YR or 10YR, value of 4 to 6, and chroma of 4 to 8; or variegated in shades of brown, yellow, black, and white
Texture—sandy clay loam or sandy loam
Mottles—in shades of brown, yellow, black, and white in some pedons

C horizon (where present):
Color—variegated in shades of brown, yellow, black, and white
Texture—sandy clay loam or clay loam

Cr horizon:
Type of bedrock—soft, weathered hornblende or amphibolite

Formation of the Soils

This section describes the factors of soil formation and relates them to the soils in the survey area.

Factors of Soil Formation

Soil characteristics are determined by the physical and mineralogical composition of the parent material; the plants and animals living on and in the soil; the climate under which the parent material accumulated and has existed since accumulation; the relief, or lay of the land; and the length of time that the forces of soil formation have acted on the soil material (Byers and others, 1938). All of these factors influence every soil, but the significance of each factor varies from place to place. In one area, one factor may dominate soil formation; in another area, a different factor may dominate.

The interrelationships among these five factors are complex, and the effects of any one factor cannot be isolated and completely evaluated. It is convenient, however, to describe each factor separately and to indicate the probable effects of each.

Parent Material

Parent material is the unconsolidated mass in which a soil forms. The chemical and mineralogical composition of the soil is derived largely from the parent material.

The soils in Fulton County primarily formed in materials weathered from crystalline rock, such as porphyritic granite, granite gneiss, biotite gneiss, amphibolites, mica schist, and hornblende gneiss (Georgia Department of Natural Resources, 1976). Cecil, Pacolet, and Saw soils are examples of soils that have a red subsoil and formed in parent material weathered mainly from granite gneiss or biotite gneiss. Madison soils have a high content of mica and formed in parent material weathered mainly from mica schist. Lloyd is an example of a soil that has a dark surface layer and subsoil and formed in parent material weathered mainly from amphibolites and hornblende gneiss or biotite gneiss. Wilkes and Wynott soils are examples of soils that have a firm, sticky, and plastic subsoil and formed in parent material that weathered mainly from basic amphibolites or hornblende. Stream alluvium is adjacent to all the streams in Fulton County. It includes sandy, loamy, and clayey sediments transported from the uplands. Cartecay, Congaree, Buncombe, Toccoa, and Wehadkee soils formed in stream alluvium.

Plants and Animals

The effects of plants, animals, and other organisms on soil formation are significant. Plants and animals increase the content of organic matter and nitrogen, increase or decrease the content of plant nutrients, and change soil structure and porosity.

Plants recycle nutrients, add organic matter, and provide food and cover for animals. They stabilize the surface layer so that the soil-forming processes can continue. They also provide a more stable environment for the soil-forming processes by protecting the soils from extremes in temperature. The soils in Fulton County

formed under a succession of briers, brambles, and woody plants that were dominated by pines and hardwoods. Hardwoods eventually suppressed most other plants and became the predominant type of plant in the climax plant community.

Animals rearrange soil material by making the surface rough, by forming and filling channels, and by shaping the peds and voids. The soil is mixed by ants, wasps, worms, and spiders, which make channels; by crustaceans, such as crayfish; and by turtles and foxes, which dig burrows. Humans affect the soil-forming processes by tilling, removing natural vegetation and establishing different plants, and reducing or increasing the level of fertility. Bacteria, fungi, and other micro-organisms hasten the decomposition of organic matter and increase the rate at which nutrients are released for plant growth.

The net gains and losses caused by plants and animals are important in Fulton County. Within the relatively small confines of the survey area, however, one soil is not significantly different from another because of the effects of plants and animals.

Climate

The present climate of Fulton County is probably similar to the climate that existed when the soils formed. The relatively high amount of rainfall and the warm temperatures contribute to rapid soil formation. Rainfall and temperature are the two most important climatic features that relate to soil properties.

Water from precipitation is essential in the formation of soil. Water dissolves soluble materials and is used by plants and animals. It transports material from one part of the soil to another part and from one area of the landscape to another area.

The soils in Fulton County formed under a thermic temperature regime. In a thermic temperature regime, the mean soil temperature at a depth of 20 inches is 59 to 72 degrees F. Based on the mean annual air temperature, the estimated soil temperature in Fulton County is 63 degrees F. The rate of chemical reactions and other processes in the soil depends to some extent on temperature. In addition, temperature affects the type and quality of vegetation, the amount and kind of organic matter, and the rate at which the organic matter decomposes.

Relief

Relief is the elevations or inequalities of a land surface considered collectively. The color of the soil, the degree of wetness, the thickness of the A horizon, the content of organic matter, and the plant cover are commonly related to relief.

In Fulton County, the most obvious effects of relief are those that relate to soil color and the degree of soil wetness. Most Cecil soils have a reddish subsoil, whereas Wehadkee soils have a grayish brown subsoil. The difference in color results from a difference in relief and a corresponding difference in internal drainage. Because Cecil soils are in the higher positions on the landscape and are better drained than Wehadkee soils, Cecil soils are better oxidized and have a reddish subsoil.

The movement of water across the surface and through the soil is controlled mostly by relief. Water flowing across the surface commonly carries solid particles and causes erosion or deposition, depending on the kind of relief. In the sloping areas, the soils are drier because more water runs off and less water penetrates the surface. The soils in low-lying areas are commonly wetter because they receive the water that flows off and through the soils in the higher positions of the landscape.

Time

The length of time that the soil-forming processes have acted on the parent material helps to determine the characteristics of the soil. Determinations of when soil

formation began in the survey area are not exact. Most of the soils are considered mature.

Mature soils are in equilibrium with the environment. They are characterized by pedogenic horizons that are readily recognizable and a carbon content that decreases regularly as the depth increases. Some areas of the Cecil soils are on stable landscapes where the soil-forming processes have been active for thousands of years. These mature soils have a solum that is highly weathered and a zone of illuviation that is well expressed. Erosion has removed most of the zone of eluviation in some places.

Toccoa soils are young soils. They receive sediment annually from floodwater. They are stratified and are not old enough to have a zone of illuviation. They do not have pedogenic horizons and are characterized by a carbon content that decreases irregularly as the depth increases.

Processes of Horizon Differentiation

One or more soil-forming processes are involved in the formation of soil horizons. These processes are the accumulation of organic matter; the chemical weathering, mainly by hydrolysis, of primary minerals into silicate clay minerals; the translocation of silicate clay and some silt-sized particles from one horizon to another; and the reduction and transfer of iron.

These processes have been active in the formation of most of the soils in Fulton County. The interaction of the first three processes is indicated by the strongly expressed horizons in Cecil and Madison soils. All four processes have probably been active in the formation of the moderately well drained Hard Labor soil.

Some organic matter has accumulated in all of the soils in the survey area. Most of the soils contain moderately low amounts of organic matter in the surface layer. The content of organic matter in the surface layer ranges from low, as in Buncombe soils, to high, as in Wehadkee soils.

As silicate clay forms from primary minerals, some iron is commonly released as hydrated oxides. These oxides are generally red. Even if they occur in small amounts, they give the soil material a brownish color. They are largely responsible for the strong brown, yellowish brown, or reddish brown colors that are dominant in the subsoil of many soils in the survey area.

The translocation of clay minerals is an important process in the development of many soils in the survey area. As clay minerals are removed from the A horizon, they accumulate as clay films on the faces of peds, in pores, and in root channels in the B horizon.

The reduction and transfer of iron has occurred in all of the soils that are not characterized by good natural drainage. This process, known as gleying, is evidenced by a gray matrix color and by iron or clay depletions. Some of the iron may be reoxidized and segregated and thus form yellow, brown, red, or other brightly colored masses of iron accumulation in an essentially gray matrix in the subsoil. Nodules or concretions of iron ore or manganese also commonly form as a result of this process. Soil features associated with chemically reduced iron are referred to as redoximorphic features (Vepraskas, 1992).

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Glossary

Many of the terms relating to landforms, geology, and geomorphology are defined in more detail in the “National Soil Survey Handbook” (available in local offices of the Natural Resources Conservation Service or on the Internet).

ABC soil. A soil having an A, a B, and a C horizon.

AC soil. A soil having only an A and a C horizon. Commonly, such soil formed in recent alluvium or on steep, rocky slopes.

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well aerated soil is similar to that in the atmosphere; the air in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alluvial fan. A low, outspread mass of loose materials and/or rock material, commonly with gentle slopes. It is shaped like an open fan or a segment of a cone. The material was deposited by a stream at the place where it issues from a narrow mountain valley or upland valley or where a tributary stream is near or at its junction with the main stream. The fan is steepest near its apex, which points upstream, and slopes gently and convexly outward (downstream) with a gradual decrease in gradient.

Alluvium. Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Aspect. The direction toward which a slope faces. Also called slope aspect.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil. The capacity, in inches, in a 60-inch profile or to a limiting layer is expressed as:

Very low	0 to 3
Low	3 to 6
Moderate	6 to 9
High	9 to 12
Very high	more than 12

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Base slope (geomorphology). A geomorphic component of hills consisting of the concave to linear (perpendicular to the contour) slope that, regardless of the lateral shape, forms an apron or wedge at the bottom of a hillside dominated by colluvium and slope-wash sediments (for example, slope alluvium).

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Bottom land. An informal term loosely applied to various portions of a flood plain.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Canyon. A long, deep, narrow valley with high, precipitous walls in an area of high local relief.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Cement rock. Shaly limestone used in the manufacture of cement.

Channery soil material. Soil material that has, by volume, 15 to 35 percent thin, flat fragments of sandstone, shale, slate, limestone, or schist as much as 6 inches (15 centimeters) along the longest axis. A single piece is called a channer.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Chiseling. Tillage with an implement having one or more soil-penetrating points that shatter or loosen hard, compacted layers to a depth below normal plow depth.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. See Redoximorphic features.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A dense, compact, slowly permeable subsoil layer that contains much more clay than the overlying materials, from which it is separated by a sharply defined boundary. A claypan is commonly hard when dry and plastic and sticky when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.

Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.

Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.

COLE (coefficient of linear extensibility). See Linear extensibility.

Colluvium. Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.

Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.

Concretions. See Redoximorphic features.

Conglomerate. A coarse grained, clastic sedimentary rock composed of rounded or subangular rock fragments more than 2 millimeters in diameter. It commonly has a matrix of sand and finer textured material. Conglomerate is the consolidated equivalent of gravel.

Conservation tillage. A tillage system that does not invert the soil and that leaves a protective amount of crop residue on the surface throughout the year.

Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the “Soil Survey Manual.”

Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.

Corrosion (soil survey interpretations). Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.

Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.

Crown. The upper part of a tree or shrub, including the living branches and their foliage.

Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.

Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.

Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.

Dense layer (in tables). A very firm, massive layer that has a bulk density of more than 1.8 grams per cubic centimeter. Such a layer affects the ease of digging and can affect filling and compacting.

Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Diversion (or diversion terrace). A ridge of earth, generally a terrace, built to protect downslope areas by diverting runoff from its natural course.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Drainageway. A general term for a course or channel along which water moves in draining an area. A term restricted to relatively small, linear depressions that at some time move concentrated water and either do not have a defined channel or have only a small defined channel.

Draw. A small stream valley that generally is shallower and more open than a ravine or gulch and that has a broader bottom. The present stream channel may appear inadequate to have cut the drainageway that it occupies.

Duff. A generally firm organic layer on the surface of mineral soils. It consists of fallen plant material that is in the process of decomposition and includes everything from the litter on the surface to underlying pure humus.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion surface. A land surface shaped by the action of erosion, especially by running water.

Escarpment. A relatively continuous and steep slope or cliff breaking the general continuity of more gently sloping land surfaces and resulting from erosion or faulting. Most commonly applied to cliffs produced by differential erosion. Synonym: scarp.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) deposited and cooled on the earth's surface.

Fertility, soil. The quality that enables a soil to provide plant nutrients, in adequate amounts and in proper balance, for the growth of specified plants when light, moisture, temperature, tilth, and other growth factors are favorable.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

Firebreak. An area cleared of flammable material to stop or help control creeping or running fires. It also serves as a line from which to work and to facilitate the movement of firefighters and equipment. Designated roads also serve as firebreaks.

First bottom. An obsolete, informal term loosely applied to the lowest flood-plain steps that are subject to regular flooding.

Flaggy soil material. Material that has, by volume, 15 to 35 percent flagstones. Very flaggy soil material has 35 to 60 percent flagstones, and extremely flaggy soil material has more than 60 percent flagstones.

Flagstone. A thin fragment of sandstone, limestone, slate, shale, or (rarely) schist 6 to 15 inches (15 to 38 centimeters) long.

Flood plain. The nearly level plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers or streams; produced by stream or river action.

Footslope. The concave surface at the base of a hillslope. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Fragipan. A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restricts roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than to deform slowly.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A small channel with steep sides caused by erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Hard bedrock. Bedrock that cannot be excavated except by blasting or by the use of special equipment that is not commonly used in construction.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Head slope (geomorphology). A geomorphic component of hills consisting of a laterally concave area of a hillside, especially at the head of a drainageway. The overland waterflow is converging.

Hill. A generic term for an elevated area of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline. Slopes are generally more than 15 percent. The distinction between a hill and a mountain is arbitrary and may depend on local usage.

Hillslope. A generic term for the steeper part of a hill between its summit and the drainage line, valley flat, or depression floor at the base of a hill.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the “Soil Survey Manual.” The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water

table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock that was formed by cooling and solidification of magma and that has not been changed appreciably by weathering since its formation. Major varieties include plutonic and volcanic rock (e.g., andesite, basalt, and granite).

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Impervious soil. A soil through which water, air, or roots penetrate slowly or not at all. No soil is absolutely impervious to air and water all the time.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration capacity. The maximum rate at which water can infiltrate into a soil under a given set of conditions.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intake rate. The average rate of water entering the soil under irrigation. Most soils have a fast initial rate; the rate decreases with application time. Therefore, intake rate for design purposes is not a constant but is a variable depending on the net irrigation application. The rate of water intake, in inches per hour, is expressed as follows:

Less than 0.2	very low
0.2 to 0.4	low
0.4 to 0.75	moderately low
0.75 to 1.25	moderate
1.25 to 1.75	moderately high
1.75 to 2.5	high
More than 2.5	very high

Interfluve. A landform composed of the relatively undissected upland or ridge between two adjacent valleys containing streams flowing in the same general direction. An elevated area between two drainageways that sheds water to those drainageways.

Interfluve (geomorphology). A geomorphic component of hills consisting of the uppermost, comparatively level or gently sloping area of a hill; shoulders of backwearing hillslopes can narrow the upland or can merge, resulting in a strongly convex shape.

Intermittent stream. A stream, or reach of a stream, that does not flow year-round but that is commonly dry for 3 or more months out of 12 and whose channel is generally below the local water table. It flows only during wet periods or when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. See Redoximorphic features.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Knoll. A small, low, rounded hill rising above adjacent landforms.

K_{sat}. Saturated hydraulic conductivity. (See Saturated hydraulic conductivity.)

Landslide. A general, encompassing term for most types of mass movement landforms and processes involving the downslope transport and outward deposition of soil and rock materials caused by gravitational forces; the movement may or may not involve saturated materials. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Masses. See Redoximorphic features.

Meander belt. The zone within which migration of a meandering channel occurs; the flood-plain area included between two imaginary lines drawn tangential to the outer bends of active channel loops.

Meander scar. A crescent-shaped, concave or linear mark on the face of a bluff or valley wall, produced by the lateral erosion of a meandering stream that impinged upon and undercut the bluff.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement at depth in the earth's crust. Nearly all such rocks are crystalline.

Mine spoil. An accumulation of displaced earthy material, rock, or other waste material removed during mining or excavation. Also called earthy fill.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Miscellaneous area. A kind of map unit that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. See Redoximorphic features.

Nose slope (geomorphology). A geomorphic component of hills consisting of the projecting end (laterally convex area) of a hillside. The overland waterflow is predominantly divergent. Nose slopes consist dominantly of colluvium and slope-wash sediments (for example, slope alluvium).

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition. The content of organic matter in the surface layer is described as follows:

Very low	less than 0.5 percent
Low	0.5 to 1.0 percent
Moderately low	1.0 to 2.0 percent
Moderate	2.0 to 4.0 percent
High	4.0 to 8.0 percent
Very high	more than 8.0 percent

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called “a soil.” A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as “saturated hydraulic conductivity,” which is defined in the “Soil Survey Manual.” In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as “permeability.” Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch

Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plateau (geomorphology). A comparatively flat area of great extent and elevation; specifically, an extensive land region that is considerably elevated (more than 100 meters) above the adjacent lower lying terrain, is commonly limited on at least one side by an abrupt descent, and has a flat or nearly level surface. A comparatively large part of a plateau surface is near summit level.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Pore linings. See Redoximorphic features.

Potential native plant community. See Climax plant community.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed as pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4

Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. See Redoximorphic features.

Redoximorphic depletions. See Redoximorphic features.

Redoximorphic features. Redoximorphic features are associated with wetness and result from alternating periods of reduction and oxidation of iron and manganese compounds in the soil. Reduction occurs during saturation with water, and oxidation occurs when the soil is not saturated. Characteristic color patterns are created by these processes. The reduced iron and manganese ions may be removed from a soil if vertical or lateral fluxes of water occur, in which case there is no iron or manganese precipitation in that soil. Wherever the iron and manganese are oxidized and precipitated, they form either soft masses or hard concretions or nodules. Movement of iron and manganese as a result of redoximorphic processes in a soil may result in redoximorphic features that are defined as follows:

1. Redoximorphic concentrations.—These are zones of apparent accumulation of iron-manganese oxides, including:

   A. Nodules and concretions, which are cemented bodies that can be removed from the soil intact. Concretions are distinguished from nodules on the basis of internal organization. A concretion typically has concentric layers that are visible to the naked eye. Nodules do not have visible organized internal structure; *and*

   B. Masses, which are noncemented concentrations of substances within the soil matrix; *and*

   C. Pore linings, i.e., zones of accumulation along pores that may be either coatings on pore surfaces or impregnations from the matrix adjacent to the pores.

2. Redoximorphic depletions.—These are zones of low chroma (chromas less than those in the matrix) where either iron-manganese oxides alone or both iron-manganese oxides and clay have been stripped out, including:

   A. Iron depletions, i.e., zones that contain low amounts of iron and manganese oxides but have a clay content similar to that of the adjacent matrix; *and*

   B. Clay depletions, i.e., zones that contain low amounts of iron, manganese, and clay (often referred to as silt coatings or skeletans).

3. Reduced matrix.—This is a soil matrix that has low chroma *in situ* but undergoes a change in hue or chroma within 30 minutes after the soil material has been exposed to air.

Reduced matrix. See Redoximorphic features.

Regolith. All unconsolidated earth materials above the solid bedrock. It includes material weathered in place from all kinds of bedrock and alluvial, glacial, eolian, lacustrine, and pyroclastic deposits.

Relief. The relative difference in elevation between the upland summits and the lowlands or valleys of a given region.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as bedrock disintegrated in place.

Rill. A very small, steep-sided channel resulting from erosion and cut in unconsolidated materials by concentrated but intermittent flow of water. A rill generally is not an obstacle to wheeled vehicles and is shallow enough to be smoothed over by ordinary tillage.

Riser. The vertical or steep side slope (e.g., escarpment) of terraces, flood-plain steps, or other stepped landforms; commonly a recurring part of a series of natural, steplike landforms, such as successive stream terraces.

Road cut. A sloping surface produced by mechanical means during road construction. It is commonly on the uphill side of the road.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Root zone. The part of the soil that can be penetrated by plant roots.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Saturated hydraulic conductivity. Saturated hydraulic conductivity is a numerical expression of the ease with which pores of a saturated soil transmit water. Formally, saturated hydraulic conductivity is the proportionality coefficient that expresses the relationship of the rate of water movement to hydraulic gradient in Darcy's Law, a law that describes the rate of water movement through porous media. Saturated hydraulic conductivity is commonly abbreviated as "K_{sat}".

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Scarification. The act of abrading, scratching, loosening, crushing, or modifying the surface to increase water absorption or to provide a more tillable soil.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Shale. Sedimentary rock that formed by the hardening of a deposit of clay, silty clay, or silty clay loam and that has a tendency to split into thin layers.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The convex, erosional surface near the top of a hillslope. A shoulder is a transition from summit to backslope.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope (geomorphology). A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel. Side slopes are dominantly colluvium and slope-wash sediments.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silica-sesquioxide ratio. The ratio of the number of molecules of silica to the number of molecules of alumina and iron oxide. The more highly weathered soils or their clay fractions in warm-temperate, humid regions, and especially those in the tropics, generally have a low ratio.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height

attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides (pedogenic). Grooved, striated, and/or glossy (shiny) slip faces on structural peds, such as wedges; produced by shrink-swell processes, most commonly in soils that have a high content of expansive clays.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance. In this survey, classes for simple slopes are as follows:

Nearly level	0 to 2 percent
Gently sloping	2 to 6 percent
Moderately sloping	6 to 10 percent
Strongly sloping	10 to 15 percent
Moderately steep	15 to 25 percent
Steep	25 to 50 percent
Very steep	50 to 60 percent

Slope alluvium. Sediment gradually transported down the slopes of mountains or hills primarily by nonchannel alluvial processes (i.e., slope-wash processes) and characterized by particle sorting. Lateral particle sorting is evident on long slopes. In a profile sequence, sediments may be distinguished by differences in size and/or specific gravity of rock fragments and may be separated by stone lines. Burnished peds and sorting of rounded or subrounded pebbles or cobbles distinguish these materials from unsorted colluvial deposits.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Soft bedrock. Bedrock that can be excavated with trenching machines, backhoes, small rippers, and other equipment commonly used in construction.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief and by the passage of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. In a vertical cross section, a line formed by scattered fragments or a discrete layer of angular and subangular rock fragments (commonly a gravel- or cobble-sized lag concentration) that formerly was draped across a topographic surface and was later buried by additional sediments. A stone line generally caps material that was subject to weathering, soil formation, and erosion before burial.

Many stone lines seem to be buried erosion pavements, originally formed by sheet and rill erosion across the land surface.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Stream terrace. One of a series of platforms in a stream valley, flanking and more or less parallel to the stream channel, originally formed near the level of the stream; represents the remnants of an abandoned flood plain, stream bed, or valley floor produced during a former state of fluvial erosion or deposition.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the "plow layer," or the "Ap horizon."

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus. Rock fragments of any size or shape (commonly coarse and angular) derived from and lying at the base of a cliff or very steep rock slope. The accumulated mass of such loose broken rock formed chiefly by falling, rolling, or sliding.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace (conservation). An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Trace elements. Chemical elements, for example, zinc, cobalt, manganese, copper, and iron, in soils in extremely small amounts. They are essential to plant growth.

Upland. An informal, general term for the higher ground of a region, in contrast with a low-lying adjacent area, such as a valley or plain, or for land at a higher elevation than the flood plain or low stream terrace; land above the footslope zone of the hillslope continuum.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Weathering. All physical disintegration, chemical decomposition, and biologically induced changes in rocks or other deposits at or near the earth's surface by atmospheric or biologic agents or by circulating surface waters but involving essentially no transport of the altered material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.—Temperature and Precipitation

(Recorded for the period 1971-2000 at Atlanta WSO Airport, GA)

Month	Temperature (Degrees F.)						Precipitation (Inches)				
				2 yrs in 10 will have				2 yrs in 10 will have			
	avg daily max	avg daily min	avg	max temp. >than	min temp. <than	avg # of grow deg days*	avg	less than	more than	avg # of days w/.1 or more	avg total snow fall
	°F	°F	°F	°F	°F	Units	Inches	Inches	Inches		Inches
January	51.9	33.5	42.7	72	7	41	5.02	3.19	6.93	7	1.0
February	56.8	36.5	46.7	77	14	73	4.68	2.58	6.72	6	0.5
March	65.0	43.6	54.3	84	21	194	5.38	3.15	7.28	7	0.6
April	72.9	50.4	61.6	88	31	357	3.62	1.78	5.29	5	0.0
May	80.0	59.5	69.8	91	43	613	3.95	2.14	5.47	6	0.0
June	86.5	67.1	76.8	97	53	804	3.63	1.62	5.59	6	0.0
July	89.4	70.6	80.0	100	63	930	5.12	2.25	7.63	8	0.0
August	87.9	69.9	78.9	98	61	895	3.67	1.81	5.47	6	0.0
September	82.3	64.3	73.3	94	48	699	4.08	1.92	6.12	5	0.0
October	72.9	52.8	62.8	86	35	402	3.11	1.01	4.94	4	0.0
November	63.3	43.5	53.4	80	25	168	4.10	2.50	5.48	6	0.0
December	54.6	36.2	45.4	75	13	61	3.82	2.04	5.43	6	0.3
Yearly :											
Average	72.0	52.3	62.1	---	---	---	----	----	----	---	---
Extreme	105	-8	---	100	5	---	----	----	----	---	---
Total	---	---	---	---	---	5236	50.20	43.98	56.27	72	2.4

Average # of days per year with at least 1 inch of snow on the ground: 1

*A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (Threshold: 50.0 deg. F)

Table 2.—Freeze Dates in Spring and Fall

(Recorded for the period 1971-2001 at Atlanta WSO Airport, GA)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
Last freezing temperature in spring:			
1 year in 10 later than--	March 10	March 26	April 13
2 year in 10 later than--	March 2	March 18	April 6
5 year in 10 later than--	February 15	March 3	March 23
First freezing temperature in fall:			
1 yr in 10 earlier than--	November 23	November 5	October 31
2 yr in 10 earlier than--	December 2	November 15	November 5
5 yr in 10 earlier than--	December 19	December 4	November 15

Table 3.—Growing Season

(Recorded for the period 1971-2001 at Atlanta WSO Airport, GA)

Probability	Daily minimum temperature during growing season		
	# days > 24 °F	# days > 28 °F	# days > 32 °F
9 years in 10	270	244	208
8 years in 10	282	255	218
5 years in 10	306	275	236
2 years in 10	330	295	254
1 year in 10	342	306	264

Table 4.—Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
AaA	Altavista sandy loam, 0 to 2 percent slopes, rarely flooded	200	*
AaB	Altavista sandy loam, 2 to 6 percent slopes	2,150	0.6
AaC	Altavista sandy loam, 6 to 10 percent slopes	420	0.1
AgB	Appling-Hard Labor complex, 2 to 6 percent slopes	2,735	0.8
AgC	Appling-Hard Labor complex, 6 to 10 percent slopes	12,605	3.7
ArE	Ashlar-Rion complex, 6 to 25 percent slopes, stony	2,420	0.7
BaA	Buncombe loamy sand, 0 to 3 percent slopes, occasionally flooded	785	0.2
CaA	Cartecay-Toccoa complex, 0 to 2 percent slopes, occasionally flooded	21,640	6.3
CeB2	Cecil sandy loam, 2 to 6 percent slopes, moderately eroded	5,220	1.5
CeC2	Cecil sandy loam, 6 to 10 percent slopes, moderately eroded	31,055	9.1
CpA	Congaree sandy loam, 0 to 2 percent slopes, occasionally flooded	3,925	1.1
CrA	Congaree-Cartecay complex, 0 to 2 percent slopes, occasionally flooded	1,865	0.5
DAM	Dam	10	*
EnC	Enon-Wynott complex, 6 to 10 percent slopes, bouldery	145	*
GaC	Grover-Mountain Park complex, 2 to 10 percent slopes, stony	140	*
GaE	Grover-Mountain Park complex, 10 to 20 percent slopes, stony	8,950	2.6
GaF	Grover-Mountain Park complex, 20 to 60 percent slopes, stony	12,130	3.5
HbB	Hiwassee sandy loam, 2 to 6 percent slopes	200	*
HbC	Hiwassee sandy loam, 6 to 10 percent slopes	385	0.1
LaD2	Lloyd-Gwinnett complex, 6 to 15 percent slopes, moderately eroded	1,070	0.3
MdB2	Madison-Bethlehem complex, 2 to 6 percent slopes, moderately eroded	1,135	0.3
MdC2	Madison-Bethlehem complex, 6 to 10 percent slopes, moderately eroded	7,110	2.1
PaB2	Pacolet sandy loam, 2 to 6 percent slopes, moderately eroded	540	0.2
PaD2	Pacolet sandy loam, 10 to 15 percent slopes, moderately eroded	5,920	1.7
PaE2	Pacolet sandy loam, 15 to 25 percent slopes, moderately eroded	240	*
PgC2	Pacolet-Saw complex, 6 to 10 percent slopes, moderately eroded, bouldery	5,685	1.7
Pt	Pits, quarry	570	0.2
ReD	Rion sandy loam, 10 to 15 percent slopes	42,215	12.3
ReE	Rion sandy loam, 15 to 25 percent slopes	10,085	2.9
RoE	Rion-Louisburg complex, 10 to 20 percent slopes, bouldery	9,455	2.8
RoF	Rion-Louisburg complex, 20 to 35 percent slopes, bouldery	4,320	1.3
Ua	Udorthents, 0 to 10 percent slopes	660	0.2
Ub	Urban land	62,775	18.3
UcC	Urban land-Altavista complex, 2 to 10 percent slopes	690	0.2
UdC	Urban land-Appling-Hard Labor complex, 2 to 10 percent slopes	5,675	1.7
UeE	Urban land-Ashlar-Rion complex, 10 to 25 percent slopes, stony	1,720	0.5
UfC2	Urban land-Cecil complex, 2 to 10 percent slopes, moderately eroded	22,460	6.6
UgC	Urban land-Grover-Mountain Park complex, 2 to 10 percent slopes, stony	200	*
UgE	Urban land-Grover-Mountain Park complex, 10 to 25 percent slopes, stony	10,790	3.2
UmC2	Urban land-Madison-Bethlehem complex, 2 to 10 percent slopes, moderately eroded	8,320	2.4
UpC2	Urban land-Pacolet-Saw complex, 2 to 10 percent slopes, moderately eroded, bouldery	700	0.2
UrE	Urban land-Rion complex, 10 to 25 percent slopes	21,320	6.2
UsE	Urban land-Rion-Louisburg complex, 10 to 25 percent slopes, bouldery	980	0.3
UwD	Urban land-Wynott-Mecklenburg-Wilkes complex, 6 to 15 percent slopes	135	*
W	Water	5,010	1.5
WbA	Wehadkee-Cartecay complex, 0 to 2 percent slopes, occasionally flooded	4,535	1.3
WcB	Wickham sandy loam, 2 to 6 percent slopes	785	0.2
WmD	Wynott-Mecklenburg-Wilkes complex, 6 to 15 percent slopes	320	*
	Total	342,400	100.0

* Less than 0.1 percent.

Table 5.—Nonirrigated Yields by Map Unit Component

(Yields are those that can be expected under a high level of management. They are for nonirrigated areas. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil.)

Map symbol and soil name	Land capability	Corn	Grass-legume hay	Pasture
		Bu	Tons	AUM
AaA:				
Altavista	2w	125.00	2.70	11.50
AaB:				
Altavista	2e	115.00	2.70	11.50
AaC:				
Altavista	3e	90.00	2.70	10.50
AgB:				
Appling	2e	70.00	2.70	8.00
Hard Labor	2e	70.00	2.70	8.00
AgC:				
Appling	3e	70.00	2.70	7.50
Hard Labor	3e	70.00	2.70	8.00
ArE:				
Ashlar	6e	---	---	4.00
Rion	6e	---	---	5.50
BaA:				
Buncombe	4w	---	1.50	3.00
CaA:				
Cartecay	3w	85.00	4.00	7.00
Toccoa	2w	90.00	4.00	6.50
CeB2:				
Cecil	2e	95.00	3.20	8.00
CeC2:				
Cecil	3e	90.00	3.00	7.50
CpA:				
Congaree	2w	100.00	4.00	7.50
CrA:				
Congaree	2w	100.00	4.00	7.50
Cartecay	3w	85.00	4.00	7.00
EnC:				
Enon	6s	---	---	7.50
Wynott	6s	65.00	2.70	4.50
GaC:				
Grover	3e	70.00	4.00	6.50
Mountain Park	3e	60.00	2.50	4.50

Table 5.—Nonirrigated Yields by Map Unit Component—Continued

Map symbol and soil name	Land capability	Corn	Grass-legume hay	Pasture
		Bu	Tons	AUM
GaE:				
Grover	6e	---	3.00	5.00
Mountain Park	6e	---	2.00	3.50
GaF:				
Grover	7e	---	2.50	4.50
Mountain Park	7e	---	1.50	2.50
HbB:				
Hiwassee	3e	90.00	3.30	8.50
HbC:				
Hiwassee	3e	90.00	3.30	8.50
LaD2:				
Lloyd	6e	---	3.00	7.50
Gwinnett	6e	---	3.00	6.50
MdB2:				
Madison	2e	70.00	3.60	6.00
Bethlehem	3e	55.00	2.70	5.50
MdC2:				
Madison	3e	65.00	2.70	5.00
Bethlehem	4e	55.00	2.50	4.50
PaB2:				
Pacolet	2e	75.00	2.70	7.50
PaD2:				
Pacolet	4e	65.00	2.30	6.00
PaE2:				
Pacolet	6e	---	2.00	5.50
PgC2:				
Pacolet	6s	70.00	2.50	6.50
Saw	6s	55.00	2.00	5.50
ReD:				
Rion	4e	65.00	2.70	7.50
ReE:				
Rion	6e	---	2.50	6.00
RoE:				
Rion	6s	---	---	6.00
Louisburg	6s	---	---	---
RoF:				
Rion	7s	---	---	4.00
Louisburg	7s	---	---	---

Table 5.—Nonirrigated Yields by Map Unit Component—Continued

Map symbol and soil name	Land capability	Corn	Grass-legume hay	Pasture
		Bu	Tons	AUM
WbA:				
Wehadkee	6w	---	---	---
Cartecay	3w	---	---	5.00
WcB:				
Wickham	2e	100.00	5.50	9.50
WmD:				
Wynott	4e	60.00	2.70	4.50
Mecklenburg	4e	70.00	3.50	5.00
Wilkes	6e	---	2.20	4.00

Table 6.—Prime Farmland and Other Important Farmlands

(Only the soils considered prime or important farmland are listed. Urban or built-up areas of the soils listed are not considered prime or important farmland. If a soil is prime or important farmland only under certain conditions, the conditions are specified in parentheses after the soil name.)

Map symbol	Map unit name	Farmland Classification
AaA	Altavista sandy loam, 0 to 2 percent slopes, rarely flooded	All areas are prime farmland
AaB	Altavista sandy loam, 2 to 6 percent slopes	All areas are prime farmland
AgB	Appling-Hard Labor complex, 2 to 6 percent slopes	All areas are prime farmland
CeB2	Cecil sandy loam, 2 to 6 percent slopes, moderately eroded	All areas are prime farmland
CpA	Congaree sandy loam, 0 to 2 percent slopes, occasionally flooded	All areas are prime farmland
CrA	Congaree-Cartecay complex, 0 to 2 percent slopes, occasionally flooded	All areas are prime farmland
HbB	Hiwassee sandy loam, 2 to 6 percent slopes	All areas are prime farmland
PaB2	Pacolet sandy loam, 2 to 6 percent slopes, moderately eroded	All areas are prime farmland
WcB	Wickham sandy loam, 2 to 6 percent slopes	All areas are prime farmland
AaC	Altavista sandy loam, 6 to 10 percent slopes	Farmland of statewide importance
AgC	Appling-Hard Labor complex, 6 to 10 percent slopes	Farmland of statewide importance
CeC2	Cecil sandy loam, 6 to 10 percent slopes, moderately eroded	Farmland of statewide importance
HbC	Hiwassee sandy loam, 6 to 10 percent slopes	Farmland of statewide importance

Table 7.—Forestland Productivity

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Potential for seedling mortality: Rating class and limiting features	Potential for seedling mortality: Value	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Trees to manage
					cu ft/ac	
AaA:						
Altavista	Low		loblolly pine	91	129	loblolly pine,
			white oak	77	57	yellow-poplar
AaB:						
Altavista	Low		loblolly pine	91	129	loblolly pine,
			white oak	77	57	yellow-poplar
AaC:						
Altavista	Low		loblolly pine	91	129	loblolly pine,
			white oak	77	57	yellow-poplar
AgB:						
Appling	Low		loblolly pine	84	114	loblolly pine,
			white oak	64	43	yellow-poplar
Hard Labor	Low		loblolly pine	88	129	loblolly pine,
			white oak	64	43	yellow-poplar
AgC:						
Appling	Low		loblolly pine	84	114	loblolly pine,
			white oak	64	43	yellow-poplar
Hard Labor	Low		loblolly pine	88	129	loblolly pine,
			white oak	64	43	yellow-poplar
ArE:						
Ashlar	Low		loblolly pine	85	114	loblolly pine,
			white oak	60	43	yellow-poplar
Rion	Low		loblolly pine	80	114	loblolly pine,
			white oak	70	---	yellow-poplar
BaA:						
Buncombe	Low		loblolly pine	90	129	loblolly pine,
			white oak	100	114	yellow-poplar
CaA:						
Cartecay	High		loblolly pine	95	143	loblolly pine,
	Wetness	1.00	yellow-poplar	105	114	yellow-poplar
Toccoa	Low		loblolly pine	90	129	loblolly pine,
			yellow-poplar	107	114	yellow-poplar
CeB2:						
Cecil	Low		loblolly pine	85	114	loblolly pine,
			white oak	80	57	shortleaf pine
CeC2:						
Cecil	Low		loblolly pine	83	114	loblolly pine,
			white oak	79	---	yellow-poplar
CpA:						
Congaree	Low		loblolly pine	90	129	loblolly pine,
			yellow-poplar	107	114	yellow-poplar

Table 7.—Forestland Productivity—Continued

Map symbol and soil name	Potential for seedling mortality: Rating class and limiting features	Potential for seedling mortality: Value	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Trees to manage
					cu ft/ac	
CrA:						
Congaree	Low		loblolly pine	90	129	loblolly pine,
			yellow-poplar	107	114	yellow-poplar
Cartecay	High		loblolly pine	95	143	loblolly pine,
	Wetness	1.00	yellow-poplar	105	114	yellow-poplar
EnC:						
Enon	Low		loblolly pine	73	100	loblolly pine,
			white oak	---	---	yellow-poplar
Wynott	Low		loblolly pine	75	100	loblolly pine,
			white oak	---	---	yellow-poplar
GaC:						
Grover	Low		loblolly pine	80	114	loblolly pine,
			white oak	---	---	yellow-poplar
Mountain Park	Low		loblolly pine	75	114	loblolly pine,
			white oak	---	---	yellow-poplar
GaE:						
Grover	Low		loblolly pine	80	114	loblolly pine,
			white oak	---	---	yellow-poplar
Mountain Park	Low		loblolly pine	75	114	loblolly pine,
			white oak	---	---	yellow-poplar
GaF:						
Grover	Moderate		loblolly pine	80	114	loblolly pine,
	Available water	0.50	white oak	---	---	yellow-poplar
Mountain Park	Moderate		loblolly pine	75	114	loblolly pine,
	Available water	0.50	white oak	---	---	yellow-poplar
HbB:						
Hiwassee	Low		loblolly pine	85	140	loblolly pine,
			white oak	80	---	yellow-poplar
HbC:						
Hiwassee	Low		loblolly pine	85	140	loblolly pine,
			white oak	80	---	yellow-poplar
LaD2:						
Lloyd	Low		loblolly pine	71	100	loblolly pine,
			white oak	70	57	yellow-poplar
Gwinnett	Low		loblolly pine	81	114	loblolly pine,
			white oak	69	57	yellow-poplar
MdB2:						
Madison	Low		loblolly pine	80	114	loblolly pine,
			white oak	75	57	yellow-poplar
Bethlehem	Low		loblolly pine	67	103	loblolly pine,
			white oak	---	---	yellow-poplar

Table 7.—Forestland Productivity—Continued

Map symbol and soil name	Potential for seedling mortality: Rating class and limiting features	Potential for seedling mortality: Value	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Trees to manage
					cu ft/ac	
MdC2:						
Madison	Low		loblolly pine	80	114	loblolly pine, yellow-poplar
			white oak	75	57	
Bethlehem	Low		loblolly pine	67	103	loblolly pine
			white oak	---	---	
PaB2:						
Pacolet	Low		loblolly pine	78	114	loblolly pine, yellow-poplar
			white oak	70	114	
PaD2:						
Pacolet	Low		loblolly pine	78	114	loblolly pine, yellow-poplar
			white oak	70	114	
PaE2:						
Pacolet	Moderate		loblolly pine	78	114	loblolly pine, yellow-poplar
	Available water	0.50	white oak	70	114	
PgC2:						
Pacolet	Low		loblolly pine	78	114	loblolly pine, yellow-poplar
			white oak	70	114	
Saw	Low		loblolly pine	70	100	loblolly pine, yellow-poplar
			white oak	---	---	
ReD:						
Rion	Low		loblolly pine	80	---	loblolly pine, yellow-poplar
			white oak	75	---	
ReE:						
Rion	Moderate		loblolly pine	80	---	loblolly pine, yellow-poplar
	Available water	0.50	white oak	70	---	
RoE:						
Rion	Low		loblolly pine	80	---	loblolly pine, yellow-poplar
			white oak	70	---	
Louisburg	Low		loblolly pine	77	---	loblolly pine, yellow-poplar
			white oak	68	---	
RoF:						
Rion	Moderate		loblolly pine	75	---	loblolly pine, yellow-poplar
	Available water	0.50	white oak	70	---	
Louisburg	Moderate		loblolly pine	75	---	loblolly pine, yellow-poplar
	Available water	0.50	white oak	68	---	
WbA:						
Wehadkee	High		yellow-poplar	100	114	willow oak, yellow-poplar
	Wetness	1.00	loblolly pine	93	143	
Cartecay	High		loblolly pine	95	143	loblolly pine, yellow-poplar
	Wetness	1.00	yellow-poplar	105	114	

Table 7.—Forestland Productivity—Continued

Map symbol and soil name	Potential for seedling mortality: Rating class and limiting features	Potential for seedling mortality: Value	Potential productivity: Common trees	Potential productivity: Site index	Potential productivity: Volume of wood fiber	Trees to manage
					cu ft/ac	
WcB:						
Wickham----------------	Low		loblolly pine-------	90	129	loblolly pine
			white oak-----------	84	72	
WmD:						
Wynott-----------------	Low		loblolly pine-------	75	100	loblolly pine
			white oak-----------	---	---	
Mecklenburg------------	Low		loblolly pine-------	73	100	loblolly pine
			white oak-----------	---	---	
Wilkes-----------------	Low		loblolly pine-------	75	100	loblolly pine
			white oak-----------	---	---	

Table 8a.—Forestland Management (Part 1)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.1 to 1.0. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Suitability for log landings: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
AaA:						
Altavista	Moderately suited		Slight		Moderately suited	
	Wetness	0.50			Wetness	0.50
AaB:						
Altavista	Moderately suited		Moderate		Moderately suited	
	Wetness	0.50	Slope/erodibility	0.50	Wetness	0.50
AaC:						
Altavista	Moderately suited		Moderate		Moderately suited	
	Slope	0.50	Slope/erodibility	0.50	Slope	0.50
	Wetness	0.50			Wetness	0.50
AgB:						
Appling	Well suited		Moderate		Well suited	
			Slope/erodibility	0.50		
Hard Labor	Well suited		Moderate		Well suited	
			Slope/erodibility	0.50		
AgC:						
Appling	Moderately suited		Moderate		Moderately suited	
	Slope	0.50	Slope/erodibility	0.50	Slope	0.50
Hard Labor	Moderately suited		Moderate		Moderately suited	
	Slope	0.50	Slope/erodibility	0.50	Slope	0.50
ArE:						
Ashlar	Moderately suited		Severe		Moderately suited	
	Slope	0.50	Slope/erodibility	0.95	Slope	0.50
Rion	Moderately suited		Severe		Moderately suited	
	Slope	0.50	Slope/erodibility	0.95	Slope	0.50
BaA:						
Buncombe	Moderately suited		Slight		Moderately suited	
	Flooding	0.50			Flooding	0.50
CaA:						
Cartecay	Moderately suited		Slight		Moderately suited	
	Wetness	0.50			Wetness	0.50
	Flooding	0.50			Flooding	0.50
Toccoa	Moderately suited		Slight		Moderately suited	
	Flooding	0.50			Flooding	0.50
CeB2:						
Cecil	Well suited		Moderate		Well suited	
			Slope/erodibility	0.50		
CeC2:						
Cecil	Moderately suited		Moderate		Moderately suited	
	Slope	0.50	Slope/erodibility	0.50	Slope	0.50
CpA:						
Congaree	Moderately suited		Slight		Moderately suited	
	Flooding	0.50			Flooding	0.50

Table 8a.—Forestland Management (Part 1)—Continued

Map symbol and soil name	Suitability for log landings: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
CrA:						
Congaree	Moderately suited		Slight		Moderately suited	
	Flooding	0.50			Flooding	0.50
Cartecay	Moderately suited		Slight		Moderately suited	
	Wetness	0.50			Wetness	0.50
	Flooding	0.50			Flooding	0.50
EnC:						
Enon	Moderately suited		Moderate		Moderately suited	
	Slope	0.50	Slope/erodibility	0.50	Slope	0.50
Wynott	Moderately suited		Moderate		Moderately suited	
	Slope	0.50	Slope/erodibility	0.50	Slope	0.50
GaC:						
Grover	Moderately suited		Moderate		Moderately suited	
	Slope	0.50	Slope/erodibility	0.50	Slope	0.50
Mountain Park	Moderately suited		Moderate		Moderately suited	
	Slope	0.50	Slope/erodibility	0.50	Slope	0.50
GaE:						
Grover	Poorly suited		Severe		Poorly suited	
	Slope	1.00	Slope/erodibility	0.95	Slope	1.00
Mountain Park	Poorly suited		Severe		Poorly suited	
	Slope	1.00	Slope/erodibility	0.95	Slope	1.00
GaF:						
Grover	Poorly suited		Severe		Poorly suited	
	Slope	1.00	Slope/erodibility	0.95	Slope	1.00
Mountain Park	Poorly suited		Severe		Poorly suited	
	Slope	1.00	Slope/erodibility	0.95	Slope	1.00
HbB:						
Hiwassee	Well suited		Moderate		Well suited	
			Slope/erodibility	0.50		
HbC:						
Hiwassee	Moderately suited		Moderate		Moderately suited	
	Slope	0.50	Slope/erodibility	0.50	Slope	0.50
LaD2:						
Lloyd	Moderately suited		Severe		Moderately suited	
	Slope	0.50	Slope/erodibility	0.95	Slope	0.50
Gwinnett	Moderately suited		Severe		Moderately suited	
	Slope	0.50	Slope/erodibility	0.95	Slope	0.50
MdB2:						
Madison	Well suited		Moderate		Well suited	
			Slope/erodibility	0.50		
Bethlehem	Well suited		Moderate		Well suited	
			Slope/erodibility	0.50		

Table 8a.—Forestland Management (Part 1)—Continued

Map symbol and soil name	Suitability for log landings: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
MdC2:						
Madison	Moderately suited		Moderate		Moderately suited	
	Slope	0.50	Slope/erodibility	0.50	Slope	0.50
Bethlehem	Moderately suited		Moderate		Moderately suited	
	Slope	0.50	Slope/erodibility	0.50	Slope	0.50
PaB2:						
Pacolet	Well suited		Moderate		Well suited	
			Slope/erodibility	0.50		
PaD2:						
Pacolet	Moderately suited		Severe		Moderately suited	
	Slope	0.50	Slope/erodibility	0.95	Slope	0.50
PaE2:						
Pacolet	Poorly suited		Severe		Poorly suited	
	Slope	1.00	Slope/erodibility	0.95	Slope	1.00
PgC2:						
Pacolet	Moderately suited		Moderate		Moderately suited	
	Slope	0.50	Slope/erodibility	0.50	Slope	0.50
Saw	Moderately suited		Moderate		Moderately suited	
	Slope	0.50	Slope/erodibility	0.50	Slope	0.50
ReD:						
Rion	Moderately suited		Severe		Moderately suited	
	Slope	0.50	Slope/erodibility	0.95	Slope	0.50
ReE:						
Rion	Poorly suited		Severe		Poorly suited	
	Slope	1.00	Slope/erodibility	0.95	Slope	1.00
RoE:						
Rion	Poorly suited		Severe		Poorly suited	
	Slope	1.00	Slope/erodibility	0.95	Slope	1.00
Louisburg	Poorly suited		Moderate		Poorly suited	
	Slope	1.00	Slope/erodibility	0.50	Slope	1.00
RoF:						
Rion	Poorly suited		Severe		Poorly suited	
	Slope	1.00	Slope/erodibility	0.95	Slope	1.00
Louisburg	Poorly suited		Severe		Poorly suited	
	Slope	1.00	Slope/erodibility	0.95	Slope	1.00
UcC:						
Urban land	Not rated		Not rated		Not rated	
Altavista	Moderately suited		Moderate		Moderately suited	
	Wetness	0.50	Slope/erodibility	0.50	Wetness	0.50
UdC:						
Urban land	Not rated		Not rated		Not rated	
Appling	Well suited		Moderate		Well suited	
			Slope/erodibility	0.50		

Table 8a.—Forestland Management (Part 1)—Continued

Map symbol and soil name	Suitability for log landings: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
Hard Labor	Moderately suited		Moderate		Moderately suited	
	Slope	0.50	Slope/erodibility	0.50	Slope	0.50
UeE:						
Urban land	Not rated		Not rated		Not rated	
Ashlar	Moderately suited		Severe		Moderately suited	
	Slope	0.50	Slope/erodibility	0.95	Slope	0.50
Rion	Moderately suited		Severe		Moderately suited	
	Slope	0.50	Slope/erodibility	0.95	Slope	0.50
UfC2:						
Urban land	Not rated		Not rated		Not rated	
Cecil	Well suited		Moderate		Well suited	
			Slope/erodibility	0.50		
UgC:						
Urban land	Not rated		Not rated		Not rated	
Grover	Well suited		Moderate		Well suited	
			Slope/erodibility	0.50		
Mountain Park	Well suited		Moderate		Well suited	
			Slope/erodibility	0.50		
UgE:						
Urban land	Not rated		Not rated		Not rated	
Grover	Poorly suited		Severe		Poorly suited	
	Slope	1.00	Slope/erodibility	0.95	Slope	1.00
Mountain Park	Poorly suited		Severe		Poorly suited	
	Slope	1.00	Slope/erodibility	0.95	Slope	1.00
UmC2:						
Urban land	Not rated		Not rated		Not rated	
Madison	Well suited		Moderate		Well suited	
			Slope/erodibility	0.50		
Bethlehem	Well suited		Moderate		Well suited	
			Slope/erodibility	0.50		
UpC2:						
Urban land	Not rated		Not rated		Not rated	
Pacolet	Well suited		Moderate		Well suited	
			Slope/erodibility	0.50		
Saw	Moderately suited		Moderate		Moderately suited	
	Slope	0.50	Slope/erodibility	0.50	Slope	0.50
UrE:						
Urban land	Not rated		Not rated		Not rated	
Rion	Poorly suited		Severe		Poorly suited	
	Slope	1.00	Slope/erodibility	0.95	Slope	1.00

Table 8a.—Forestland Management (Part 1)—Continued

Map symbol and soil name	Suitability for log landings: Rating class and limiting features	Value	Hazard of erosion on roads and trails: Rating class and limiting features	Value	Suitability for roads (natural surface): Rating class and limiting features	Value
UsE:						
Urban land	Not rated		Not rated		Not rated	
Rion	Poorly suited		Severe		Poorly suited	
	Slope	1.00	Slope/erodibility	0.95	Slope	1.00
Louisburg	Poorly suited		Severe		Poorly suited	
	Slope	1.00	Slope/erodibility	0.95	Slope	1.00
UwD:						
Urban land	Not rated		Not rated		Not rated	
Wynott	Moderately suited		Severe		Moderately suited	
	Slope	0.50	Slope/erodibility	0.95	Slope	0.50
Mecklenburg	Moderately suited		Severe		Moderately suited	
	Slope	0.50	Slope/erodibility	0.95	Slope	0.50
Wilkes	Moderately suited		Severe		Moderately suited	
	Slope	0.50	Slope/erodibility	0.95	Slope	0.50
WbA:						
Wehadkee	Poorly suited		Slight		Poorly suited	
	Ponding	1.00			Ponding	1.00
	Flooding	1.00			Flooding	1.00
	Wetness	1.00			Wetness	1.00
Cartecay	Moderately suited		Slight		Moderately suited	
	Wetness	0.50			Wetness	0.50
	Flooding	0.50			Flooding	0.50
WcB:						
Wickham	Well suited		Moderate		Well suited	
			Slope/erodibility	0.50		
WmD:						
Wynott	Moderately suited		Severe		Moderately suited	
	Slope	0.50	Slope/erodibility	0.95	Slope	0.50
Mecklenburg	Moderately suited		Severe		Moderately suited	
	Slope	0.50	Slope/erodibility	0.95	Slope	0.50
Wilkes	Moderately suited		Severe		Moderately suited	
	Slope	0.50	Slope/erodibility	0.95	Slope	0.50

Table 8b.—Forestland Management (Part 2)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
AaA:						
Altavista	Well suited		Well suited		Well suited	
AaB:						
Altavista	Well suited		Well suited		Well suited	
AaC:						
Altavista	Well suited		Moderately suited		Well suited	
			Slope	0.50		
AgB:						
Appling	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
Hard Labor	Well suited		Well suited		Well suited	
AgC:						
Appling	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
			Slope	0.50		
Hard Labor	Well suited		Moderately suited		Well suited	
			Slope	0.50		
ArE:						
Ashlar	Well suited		Moderately suited		Well suited	
			Slope	0.50		
Rion	Well suited		Moderately suited		Well suited	
			Slope	0.50		
BaA:						
Buncombe	Well suited		Well suited		Well suited	
CaA:						
Cartecay	Well suited		Well suited		Well suited	
Toccoa	Well suited		Well suited		Well suited	
CeB2:						
Cecil	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
CeC2:						
Cecil	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
			Slope	0.50		
CpA:						
Congaree	Well suited		Well suited		Well suited	

Table 8b.—Forestland Management (Part 2)—Continued

Map symbol and soil name	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
CrA:						
Congaree	Well suited		Well suited		Well suited	
Cartecay	Well suited		Well suited		Well suited	
EnC:						
Enon	Poorly suited		Poorly suited		Well suited	
	Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75		
	Rock fragments	0.50	Rock fragments	0.50		
			Slope	0.50		
Wynott	Poorly suited		Poorly suited		Well suited	
	Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75		
	Rock fragments	0.50	Rock fragments	0.50		
			Slope	0.50		
GaC:						
Grover	Well suited		Moderately suited		Well suited	
			Slope	0.50		
Mountain Park	Well suited		Moderately suited		Well suited	
			Slope	0.50		
GaE:						
Grover	Well suited		Moderately suited		Well suited	
			Slope	0.50		
Mountain Park	Well suited		Moderately suited		Well suited	
			Slope	0.50		
GaF:						
Grover	Moderately suited		Unsuited		Moderately suited	
	Slope	0.50	Slope	1.00	Slope	0.50
			Rock fragments	0.50		
Mountain Park	Moderately suited		Unsuited		Moderately suited	
	Slope	0.50	Slope	1.00	Slope	0.50
			Rock fragments	0.50		
HbB:						
Hiwassee	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
HbC:						
Hiwassee	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Slope	0.50		
			Stickiness; high plasticity index	0.50		
LaD2:						
Lloyd	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
			Rock fragments	0.50		
			Slope	0.50		

Table 8b.—Forestland Management (Part 2)—Continued

Map symbol and soil name	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
Gwinnett------------	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
			Slope	0.50		
MdB2:						
Madison-------------	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
Bethlehem-----------	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
MdC2:						
Madison-------------	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
			Slope	0.50		
Bethlehem-----------	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Slope	0.50		
			Stickiness; high plasticity index	0.50		
PaB2:						
Pacolet-------------	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
PaD2:						
Pacolet-------------	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
			Slope	0.50		
PaE2:						
Pacolet-------------	Moderately suited		Poorly suited		Moderately suited	
	Stickiness; high plasticity index	0.50	Slope	0.75	Slope	0.50
			Stickiness; high plasticity index	0.50		
PgC2:						
Pacolet-------------	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
			Slope	0.50		
Saw-----------------	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
			Slope	0.50		
ReD:						
Rion----------------	Well suited		Moderately suited		Well suited	
			Slope	0.50		
ReE:						
Rion----------------	Well suited		Poorly suited		Well suited	
			Slope	0.75		

Table 8b.—Forestland Management (Part 2)—Continued

Map symbol and soil name	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
RoE:						
Rion	Well suited		Moderately suited		Well suited	
			Slope	0.50		
Louisburg	Well suited		Moderately suited		Well suited	
			Slope	0.50		
RoF:						
Rion	Well suited		Unsuited		Moderately suited	
			Slope	1.00	Slope	0.50
Louisburg	Well suited		Unsuited		Moderately suited	
			Slope	1.00	Slope	0.50
UcC:						
Urban land	Not rated		Not rated		Not rated	
Altavista	Well suited		Moderately suited		Well suited	
			Slope	0.50		
UdC:						
Urban land	Not rated		Not rated		Not rated	
Appling	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
			Slope	0.50		
Hard Labor	Well suited		Moderately suited		Well suited	
			Slope	0.50		
UeE:						
Urban land	Not rated		Not rated		Not rated	
Ashlar	Well suited		Moderately suited		Well suited	
			Slope	0.50		
Rion	Well suited		Moderately suited		Well suited	
			Slope	0.50		
UfC2:						
Urban land	Not rated		Not rated		Not rated	
Cecil	Well suited		Moderately suited		Well suited	
			Slope	0.50		

Table 8b.—Forestland Management (Part 2)—Continued

Map symbol and soil name	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
UgC:						
Urban land	Not rated		Not rated		Not rated	
Grover	Well suited		Moderately suited		Well suited	
			Slope	0.50		
Mountain Park	Well suited		Moderately suited		Well suited	
			Slope	0.50		
UgE:						
Urban land	Not rated		Not rated		Not rated	
Grover	Well suited		Poorly suited		Moderately suited	
			Slope	0.75	Slope	0.50
Mountain Park	Well suited		Poorly suited		Moderately suited	
			Slope	0.75	Slope	0.50
UmC2:						
Urban land	Not rated		Not rated		Not rated	
Madison	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
			Slope	0.50		
Bethlehem	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
			Slope	0.50		
UpC2:						
Urban land	Not rated		Not rated		Not rated	
Pacolet	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
			Slope	0.50		
Saw	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Stickiness; high plasticity index	0.50		
			Slope	0.50		
UrE:						
Urban land	Not rated		Not rated		Not rated	

Table 8b.—Forestland Management (Part 2)—Continued

Map symbol and soil name	Suitability for hand planting: Rating class and limiting features	Value	Suitability for mechanical planting: Rating class and limiting features	Value	Suitability for use of harvesting equipment: Rating class and limiting features	Value
Rion	Well suited		Poorly suited		Moderately suited	
			Slope	0.75	Slope	0.50
UsE:						
Urban land	Not rated		Not rated		Not rated	
Rion	Well suited		Poorly suited		Moderately suited	
			Slope	0.75	Slope	0.50
Louisburg	Well suited		Poorly suited		Moderately suited	
			Slope	0.75	Slope	0.50
UwD:						
Urban land	Not rated		Not rated		Not rated	
Wynott	Poorly suited		Poorly suited		Well suited	
	Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75		
			Rock fragments	0.50		
			Slope	0.50		
Mecklenburg	Poorly suited		Poorly suited		Well suited	
	Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75		
			Rock fragments	0.50		
			Slope	0.50		
Wilkes	Moderately suited		Poorly suited		Well suited	
	Stickiness; high plasticity index	0.50	Rock fragments	0.75		
	Rock fragments	0.50	Slope	0.50		
			Stickiness; high plasticity index	0.50		
WbA:						
Wehadkee	Well suited		Well suited		Well suited	
Cartecay	Well suited		Well suited		Well suited	
WcB:						
Wickham	Well suited		Well suited		Well suited	
WmD:						
Wynott	Poorly suited		Poorly suited		Well suited	
	Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75		
			Rock fragments	0.50		
			Slope	0.50		
Mecklenburg	Poorly suited		Poorly suited		Well suited	
	Stickiness; high plasticity index	0.75	Stickiness; high plasticity index	0.75		
			Rock fragments	0.50		
			Slope	0.50		

Table 8b.—Forestland Management (Part 2)—Continued

Map symbol and soil name	Suitability for hand planting		Suitability for mechanical planting		Suitability for use of harvesting equipment	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Wilkes--------------	Moderately suited		Moderately suited		Well suited	
	Stickiness; high plasticity index	0.50	Rock fragments	0.50		
			Slope	0.50		
			Stickiness; high plasticity index	0.50		

Table 9a.—Recreation (Part 1)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Camp areas		Picnic areas	
	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA:				
Altavista	Very limited		Somewhat limited	
	Flooding	1.00	Depth to saturated zone	0.22
	Depth to saturated zone	0.44		
AaB:				
Altavista	Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.22
AaC:				
Altavista	Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.22
	Slope	0.01	Slope	0.01
AgB:				
Appling	Not limited		Not limited	
Hard Labor	Somewhat limited		Somewhat limited	
	Slow water movement	0.60	Slow water movement	0.60
AgC:				
Appling	Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01
Hard Labor	Somewhat limited		Somewhat limited	
	Slow water movement	0.60	Slow water movement	0.60
	Slope	0.01	Slope	0.01
ArE:				
Ashlar	Somewhat limited		Somewhat limited	
	Slope	0.63	Slope	0.63
Rion	Somewhat limited		Somewhat limited	
	Slope	0.63	Slope	0.63
BaA:				
Buncombe	Very limited		Somewhat limited	
	Flooding	1.00	Too sandy	0.79
	Too sandy	0.79		
CaA:				
Cartecay	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Flooding	1.00		
Toccoa	Very limited		Not limited	
	Flooding	1.00		
CeB2:				
Cecil	Not limited		Not limited	

Table 9a.—Recreation (Part 1)—Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
CeC2:				
Cecil	Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01
CpA:				
Congaree	Very limited		Not limited	
	Flooding	1.00		
CrA:				
Congaree	Very limited		Not limited	
	Flooding	1.00		
Cartecay	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Flooding	1.00		
EnC:				
Enon	Somewhat limited		Somewhat limited	
	Slow water movement	0.94	Slow water movement	0.94
	Large stones content	0.23	Large stones content	0.23
	Slope	0.01	Slope	0.01
Wynott	Somewhat limited		Somewhat limited	
	Slow water movement	0.94	Slow water movement	0.94
	Large stones content	0.14	Large stones content	0.14
	Slope	0.01	Slope	0.01
GaC:				
Grover	Not limited		Not limited	
Mountain Park	Not limited		Not limited	
GaE:				
Grover	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Mountain Park	Very limited		Very limited	
	Slope	1.00	Slope	1.00
GaF:				
Grover	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Mountain Park	Very limited		Very limited	
	Slope	1.00	Slope	1.00
HbB:				
Hiwassee	Not limited		Not limited	
HbC:				
Hiwassee	Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01
LaD2:				
Lloyd	Somewhat limited		Somewhat limited	
	Slope	0.37	Slope	0.37

Table 9a.—Recreation (Part 1)—Continued

Map symbol and soil name	Camp areas		Picnic areas	
	Rating class and limiting features	Value	Rating class and limiting features	Value
Gwinnett------------	Somewhat limited		Somewhat limited	
	Slope	0.37	Slope	0.37
MdB2:				
Madison-------------	Not limited		Not limited	
Bethlehem-----------	Not limited		Not limited	
MdC2:				
Madison-------------	Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01
Bethlehem-----------	Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01
PaB2:				
Pacolet-------------	Not limited		Not limited	
PaD2:				
Pacolet-------------	Somewhat limited		Somewhat limited	
	Slope	0.63	Slope	0.63
PaE2:				
Pacolet-------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
PgC2:				
Pacolet-------------	Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01
Saw-----------------	Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01
ReD:				
Rion----------------	Somewhat limited		Somewhat limited	
	Slope	0.63	Slope	0.63
ReE:				
Rion----------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
RoE:				
Rion----------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Louisburg-----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
RoF:				
Rion----------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Louisburg-----------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
UcC:				
Urban land----------	Not Rated		Not Rated	
Altavista-----------	Somewhat limited		Somewhat limited	
	Depth to saturated zone	0.44	Depth to saturated zone	0.22

Table 9a.—Recreation (Part 1)—Continued

Map symbol and soil name	Camp areas: Rating class and limiting features	Camp areas: Value	Picnic areas: Rating class and limiting features	Picnic areas: Value
UdC:				
Urban land	Not Rated		Not Rated	
Appling	Not limited		Not limited	
Hard Labor	Somewhat limited		Somewhat limited	
	Slow water movement	0.60	Slow water movement	0.60
	Slope	0.01	Slope	0.01
UeE:				
Urban land	Not Rated		Not Rated	
Ashlar	Somewhat limited		Somewhat limited	
	Slope	0.04	Slope	0.04
Rion	Somewhat limited		Somewhat limited	
	Slope	0.04	Slope	0.04
UfC2:				
Urban land	Not Rated		Not Rated	
Cecil	Not limited		Not limited	
UgC:				
Urban land	Not Rated		Not Rated	
Grover	Not limited		Not limited	
Mountain Park	Not limited		Not limited	
UgE:				
Urban land	Not Rated		Not Rated	
Grover	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Mountain Park	Very limited		Very limited	
	Slope	1.00	Slope	1.00
UmC2:				
Urban land	Not Rated		Not Rated	
Madison	Not limited		Not limited	
Bethlehem	Not limited		Not limited	
UpC2:				
Urban land	Not Rated		Not Rated	
Pacolet	Not limited		Not limited	
Saw	Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01
UrE:				
Urban land	Not Rated		Not Rated	
Rion	Very limited		Very limited	
	Slope	1.00	Slope	1.00

Table 9a.—Recreation (Part 1)—Continued

Map symbol and soil name	Camp areas		Picnic areas	
	Rating class and limiting features	Value	Rating class and limiting features	Value
UsE:				
Urban land	Not Rated		Not Rated	
Rion	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Louisburg	Very limited		Very limited	
	Slope	1.00	Slope	1.00
UwD:				
Urban land	Not Rated		Not Rated	
Wynott	Somewhat limited		Somewhat limited	
	Slow water movement	0.94	Slow water movement	0.94
	Slope	0.37	Slope	0.37
Mecklenburg	Somewhat limited		Somewhat limited	
	Slow water movement	0.94	Slow water movement	0.94
	Slope	0.37	Slope	0.37
Wilkes	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00
	Slow water movement	0.94	Slow water movement	0.94
	Slope	0.37	Slope	0.37
WbA:				
Wehadkee	Very limited		Very limited	
	Depth to saturated zone	1.00	Ponding	1.00
	Flooding	1.00	Depth to saturated zone	1.00
	Ponding	1.00		
Cartecay	Very limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.94
	Flooding	1.00		
WcB:				
Wickham	Not limited		Not limited	
WmD:				
Wynott	Somewhat limited		Somewhat limited	
	Slow water movement	0.94	Slow water movement	0.94
	Slope	0.37	Slope	0.37
Mecklenburg	Somewhat limited		Somewhat limited	
	Slow water movement	0.94	Slow water movement	0.94
	Slope	0.37	Slope	0.37
Wilkes	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to bedrock	1.00
	Slow water movement	0.94	Slow water movement	0.94
	Slope	0.37	Slope	0.37

Table 9b.—Recreation (Part 2)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Playgrounds		Paths and Trails		Golf Fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA:						
Altavista	Somewhat limited		Not limited		Somewhat limited	
	Depth to saturated zone	0.44			Depth to saturated zone	0.22
AaB:						
Altavista	Somewhat limited		Not limited		Somewhat limited	
	Slope	0.50			Depth to saturated zone	0.22
	Depth to saturated zone	0.44				
AaC:						
Altavista	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Depth to saturated zone	0.22
	Depth to saturated zone	0.44			Slope	0.01
AgB:						
Appling	Somewhat limited		Not limited		Not limited	
	Slope	0.50				
Hard Labor	Somewhat limited		Not limited		Not limited	
	Slow water movement	0.60				
	Slope	0.50				
AgC:						
Appling	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Slope	0.01
Hard Labor	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Slope	0.01
	Slow water movement	0.60				
ArE:						
Ashlar	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Depth to bedrock	0.99
	Depth to bedrock	0.99			Droughty	0.99
	Gravel content	0.02			Slope	0.63
Rion	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Slope	0.63
	Gravel content	0.02				
BaA:						
Buncombe	Somewhat limited		Somewhat limited		Somewhat limited	
	Too sandy	0.79	Too sandy	0.79	Droughty	0.96
	Flooding	0.60			Flooding	0.60
CaA:						
Cartecay	Very limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.86	Depth to saturated zone	0.94
	Flooding	0.60			Flooding	0.60
Toccoa	Somewhat limited		Not limited		Somewhat limited	
	Flooding	0.60			Flooding	0.60

Table 9b.—Recreation (Part2)

Map symbol and soil name	Playgrounds		Paths and Trails		Golf Fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CeB2:						
Cecil	Somewhat limited		Not limited		Not limited	
	Slope	0.12				
CeC2:						
Cecil	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Slope	0.01
CpA:						
Congaree	Somewhat limited		Not limited		Somewhat limited	
	Flooding	0.60			Flooding	0.60
CrA:						
Congaree	Somewhat limited		Not limited		Somewhat limited	
	Flooding	0.60			Flooding	0.60
Cartecay	Very limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.86	Depth to saturated zone	0.94
	Flooding	0.60			Flooding	0.60
EnC:						
Enon	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Large stones content	0.23	Large stones content	1.00
	Slow water movement	0.94			Slope	0.01
	Large stones content	0.23				
	Gravel content	0.18				
Wynott	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Large stones content	0.14	Large stones content	1.00
	Slow water movement	0.94			Depth to bedrock	0.46
	Depth to bedrock	0.46			Slope	0.01
	Gravel content	0.27				
	Large stones content	0.14				
GaC:						
Grover	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Large stones content	0.01
Mountain Park	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Depth to bedrock	0.29
	Depth to bedrock	0.29			Droughty	0.02
					Large stones content	0.01
GaE:						
Grover	Very limited		Not limited		Very limited	
	Slope	1.00			Slope	1.00
	Gravel content	0.20			Large stones content	0.01
Mountain Park	Very limited		Not limited		Very limited	
	Slope	1.00			Slope	1.00
	Depth to bedrock	0.29			Depth to bedrock	0.29
	Gravel content	0.20			Droughty	0.02
					Large stones content	0.01

Table 9b.—Recreation (Part 2)—Continued

Map symbol and soil name	Playgrounds: Rating class and limiting features	Value	Paths and Trails: Rating class and limiting features	Value	Golf Fairways: Rating class and limiting features	Value
GaF:						
Grover------------------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Gravel content	0.20			Large stones content	0.01
Mountain Park-----------	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Depth to bedrock	0.29			Depth to bedrock	0.29
	Gravel content	0.20			Droughty	0.02
					Large stones content	0.01
HbB:						
Hiwassee----------------	Somewhat limited		Not limited		Not limited	
	Slope	0.50				
HbC:						
Hiwassee----------------	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Slope	0.01
LaD2:						
Lloyd-------------------	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Slope	0.37
	Gravel content	0.22				
Gwinnett----------------	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Slope	0.37
	Gravel content	0.22				
MdB2:						
Madison-----------------	Somewhat limited		Not limited		Not limited	
	Slope	0.50				
Bethlehem---------------	Somewhat limited		Not limited		Somewhat limited	
	Slope	0.50			Depth to bedrock	0.46
	Depth to bedrock	0.46			Droughty	0.13
MdC2:						
Madison-----------------	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Slope	0.01
Bethlehem---------------	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Depth to bedrock	0.46
	Depth to bedrock	0.46			Droughty	0.13
					Slope	0.01
PaB2:						
Pacolet-----------------	Somewhat limited		Not limited		Not limited	
	Slope	0.50				
PaD2:						
Pacolet-----------------	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Slope	0.63
PaE2:						
Pacolet-----------------	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.50	Slope	1.00

Table 9b.—Recreation (Part 2)—Continued

Map symbol and soil name	Playgrounds: Rating class and limiting features	Playgrounds: Value	Paths and Trails: Rating class and limiting features	Paths and Trails: Value	Golf Fairways: Rating class and limiting features	Golf Fairways: Value
PgC2:						
Pacolet	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Large stones content	0.01
	Gravel content	0.34			Slope	0.01
Saw	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Depth to bedrock	0.97
	Depth to bedrock	0.97			Droughty	0.63
	Gravel content	0.24			Large stones content	0.01
					Slope	0.01
ReD:						
Rion	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Slope	0.63
ReE:						
Rion	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.18	Slope	1.00
RoE:						
Rion	Very limited		Not limited		Very limited	
	Slope	1.00			Slope	1.00
	Gravel content	0.37				
Louisburg	Very limited		Not limited		Very limited	
	Slope	1.00			Slope	1.00
	Gravel content	0.72			Droughty	0.01
RoF:						
Rion	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Gravel content	0.37				
Louisburg	Very limited		Very limited		Very limited	
	Slope	1.00	Slope	1.00	Slope	1.00
	Gravel content	0.49			Droughty	0.01
UcC:						
Urban land	Not Rated		Not Rated		Not rated	
Altavista	Somewhat limited		Not limited		Somewhat limited	
	Slope	0.88			Depth to saturated zone	0.22
	Depth to saturated zone	0.44				
UdC:						
Urban land	Not Rated		Not Rated		Not rated	
Appling	Somewhat limited		Not limited		Not limited	
	Slope	0.88				
Hard Labor	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Slope	0.01
	Slow water movement	0.60				
UeE:						
Urban land	Not Rated		Not Rated		Not rated	

Table 9b.—Recreation (Part 2)—Continued

Map symbol and soil name	Playgrounds		Paths and Trails		Golf Fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Ashlar------------------	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Depth to bedrock	0.99
	Depth to bedrock	0.99			Droughty	0.99
	Gravel content	0.02			Slope	0.04
Rion--------------------	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Slope	0.04
	Gravel content	0.02				
UfC2:						
Urban land--------------	Not Rated		Not Rated		Not rated	
Cecil-------------------	Somewhat limited		Not limited		Not limited	
	Slope	0.88				
UgC:						
Urban land--------------	Not Rated		Not Rated		Not rated	
Grover------------------	Somewhat limited		Not limited		Not limited	
	Slope	0.88				
Mountain Park-----------	Somewhat limited		Not limited		Somewhat limited	
	Slope	0.88			Depth to bedrock	0.29
	Depth to bedrock	0.29			Droughty	0.02
UgE:						
Urban land--------------	Not Rated		Not Rated		Not rated	
Grover------------------	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.50	Slope	1.00
	Gravel content	0.27				
Mountain Park-----------	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.50	Slope	1.00
	Depth to bedrock	0.29			Depth to bedrock	0.29
	Gravel content	0.27			Droughty	0.02
UmC2:						
Urban land--------------	Not Rated		Not Rated		Not rated	
Madison-----------------	Somewhat limited		Not limited		Not limited	
	Slope	0.88				
Bethlehem---------------	Somewhat limited		Not limited		Somewhat limited	
	Slope	0.88			Depth to bedrock	0.46
	Depth to bedrock	0.46			Droughty	0.13
UpC2:						
Urban land--------------	Not Rated		Not Rated		Not rated	
Pacolet-----------------	Somewhat limited		Not limited		Not limited	
	Slope	0.88				
Saw---------------------	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Depth to bedrock	0.97
	Depth to bedrock	0.97			Droughty	0.63
	Gravel content	0.24			Large stones content	0.01
					Slope	0.01

Table 9b.—Recreation (Part 2)—Continued

Map symbol and soil name	Playgrounds: Rating class and limiting features	Playgrounds: Value	Paths and Trails: Rating class and limiting features	Paths and Trails: Value	Golf Fairways: Rating class and limiting features	Golf Fairways: Value
UrE:						
Urban land	Not Rated		Not Rated		Not rated	
Rion	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.50	Slope	1.00
UsE:						
Urban land	Not Rated		Not Rated		Not rated	
Rion	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.50	Slope	1.00
Louisburg	Very limited		Somewhat limited		Very limited	
	Slope	1.00	Slope	0.50	Slope	1.00
					Droughty	0.01
UwD:						
Urban land	Not Rated		Not Rated		Not rated	
Wynott	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Depth to bedrock	0.46
	Slow water movement	0.94			Slope	0.37
	Depth to bedrock	0.46				
	Gravel content	0.11				
Mecklenburg	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Slope	0.37
	Gravel content	0.99				
	Slow water movement	0.94				
Wilkes	Very limited		Not limited		Very limited	
	Slope	1.00			Depth to bedrock	1.00
	Depth to bedrock	1.00			Droughty	0.85
	Gravel content	0.99			Slope	0.37
	Slow water movement	0.94				
WbA:						
Wehadkee	Very limited		Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00	Ponding	1.00
	Ponding	1.00	Ponding	1.00	Depth to saturated zone	1.00
	Flooding	0.60			Flooding	0.60
Cartecay	Very limited		Somewhat limited		Somewhat limited	
	Depth to saturated zone	1.00	Depth to saturated zone	0.86	Depth to saturated zone	0.94
	Flooding	0.60			Flooding	0.60
WcB:						
Wickham	Somewhat limited		Not limited		Not limited	
	Slope	0.50				
WmD:						
Wynott	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Depth to bedrock	0.46
	Slow water movement	0.94			Slope	0.37
	Depth to bedrock	0.46				
	Gravel content	0.11				

Table 9b.—Recreation (Part 2)—Continued

Map symbol and soil name	Playgrounds		Paths and Trails		Golf Fairways	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Mecklenburg	Very limited		Not limited		Somewhat limited	
	Slope	1.00			Slope	0.37
	Gravel content	0.99				
	Slow water movement	0.94				
Wilkes	Very limited		Not limited		Very limited	
	Slope	1.00			Depth to bedrock	1.00
	Depth to bedrock	1.00			Droughty	0.85
	Gravel content	0.99			Slope	0.37
	Slow water movement	0.94				

Table 10a.—Building Site Development (Part 1)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Dwellings without basements		Dwellings with basements	
	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA:				
Altavista	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	0.44	Depth to saturated zone	1.00
AaB:				
Altavista	Somewhat limited		Very limited	
	Depth to saturated zone	0.44	Depth to saturated zone	1.00
AaC:				
Altavista	Somewhat limited		Very limited	
	Depth to saturated zone	0.44	Depth to saturated zone	1.00
	Slope	0.01	Slope	0.01
AgB:				
Appling	Not limited		Not limited	
Hard Labor	Not limited		Somewhat limited	
			Depth to saturated zone	0.99
AgC:				
Appling	Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01
Hard Labor	Somewhat limited		Somewhat limited	
	Slope	0.01	Depth to saturated zone	0.99
			Slope	0.01
ArE:				
Ashlar	Somewhat limited		Very limited	
	Depth to hard bedrock	0.90	Depth to hard bedrock	1.00
	Slope	0.63	Depth to soft bedrock	0.99
			Slope	0.63
Rion	Somewhat limited		Somewhat limited	
	Slope	0.63	Slope	0.63
BaA:				
Buncombe	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
CaA:				
Cartecay	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00

Table 10a.—Building Site Development (Part 1)—Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value
Toccoa	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.73
CeB2:				
Cecil	Not limited		Not limited	
CeC2:				
Cecil	Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01
CpA:				
Congaree	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.95
CrA:				
Congaree	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
			Depth to saturated zone	0.95
Cartecay	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
EnC:				
Enon	Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01
Wynott	Very limited		Very limited	
	Shrink-swell	1.00	Shrink-swell	1.00
	Slope	0.01	Depth to hard bedrock	0.96
			Depth to soft bedrock	0.46
			Slope	0.01
GaC:				
Grover	Not limited		Not limited	
Mountain Park	Not limited		Somewhat limited	
			Depth to soft bedrock	0.29
GaE:				
Grover	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Mountain Park	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Depth to soft bedrock	0.29
GaF:				
Grover	Very limited		Very limited	
	Slope	1.00	Slope	1.00

Table 10a.—Building Site Development (Part 1)—Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value
Mountain Park-------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Depth to soft bedrock	0.29
HbB:				
Hiwassee------------	Not limited		Not limited	
HbC:				
Hiwassee------------	Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01
LaD2:				
Lloyd---------------	Somewhat limited		Somewhat limited	
	Slope	0.37	Slope	0.37
Gwinnett------------	Somewhat limited		Somewhat limited	
	Slope	0.37	Slope	0.37
MdB2:				
Madison-------------	Not limited		Not limited	
Bethlehem-----------	Not limited		Somewhat limited	
			Depth to soft bedrock	0.46
MdC2:				
Madison-------------	Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01
Bethlehem-----------	Somewhat limited		Somewhat limited	
	Slope	0.01	Depth to soft bedrock	0.46
			Slope	0.01
PaB2:				
Pacolet-------------	Not limited		Not limited	
PaD2:				
Pacolet-------------	Somewhat limited		Somewhat limited	
	Slope	0.63	Slope	0.63
PaE2:				
Pacolet-------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
PgC2:				
Pacolet-------------	Somewhat limited		Somewhat limited	
	Slope	0.01	Slope	0.01
Saw-----------------	Somewhat limited		Very limited	
	Depth to hard bedrock	0.97	Depth to hard bedrock	1.00
	Slope	0.01	Slope	0.01
ReD:				
Rion----------------	Somewhat limited		Somewhat limited	
	Slope	0.63	Slope	0.63

Table 10a.—Building Site Development (Part 1)—Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value
ReE:				
Rion	Very limited		Very limited	
	Slope	1.00	Slope	1.00
RoE:				
Rion	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Louisburg	Very limited		Very limited	
	Slope	1.00	Slope	1.00
RoF:				
Rion	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Louisburg	Very limited		Very limited	
	Slope	1.00	Slope	1.00
UcC:				
Urban land	Not rated		Not rated	
Altavista	Somewhat limited		Very limited	
	Depth to saturated zone	0.44	Depth to saturated zone	1.00
UdC:				
Urban land	Not rated		Not rated	
Appling	Not limited		Not limited	
Hard Labor	Somewhat limited		Somewhat limited	
	Slope	0.01	Depth to saturated zone	0.99
			Slope	0.01
UeE:				
Urban land	Not rated		Not rated	
Ashlar	Somewhat limited		Very limited	
	Depth to hard bedrock	0.90	Depth to hard bedrock	1.00
	Slope	0.04	Depth to soft bedrock	0.99
			Slope	0.04
Rion	Somewhat limited		Somewhat limited	
	Slope	0.04	Slope	0.04
UfC2:				
Urban land	Not rated		Not rated	
Cecil	Not limited		Not limited	
UgC:				
Urban land	Not rated		Not rated	
Grover	Not limited		Not limited	
Mountain Park	Not limited		Somewhat limited	
			Depth to soft bedrock	0.29

Table 10a.—Building Site Development (Part 1)—Continued

Map symbol and soil name	Dwellings without basements: Rating class and limiting features	Value	Dwellings with basements: Rating class and limiting features	Value
UgE:				
Urban land	Not rated		Not rated	
Grover	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Mountain Park	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Depth to soft bedrock	0.29
UmC2:				
Urban land	Not rated		Not rated	
Madison	Not limited		Not limited	
Bethlehem	Not limited		Somewhat limited	
			Depth to soft bedrock	0.46
UpC2:				
Urban land	Not rated		Not rated	
Pacolet	Not limited		Not limited	
Saw	Somewhat limited		Very limited	
	Depth to hard bedrock	0.97	Depth to hard bedrock	1.00
	Slope	0.01	Slope	0.01
UrE:				
Urban land	Not rated		Not rated	
Rion	Very limited		Very limited	
	Slope	1.00	Slope	1.00
UsE:				
Urban land	Not rated		Not rated	
Rion	Very limited		Very limited	
	Slope	1.00	Slope	1.00
Louisburg	Very limited		Very limited	
	Slope	1.00	Slope	1.00
UwD:				
Urban land	Not rated		Not rated	
Wynott	Very limited		Very limited	
	Shrink-swell	1.00	Shrink-swell	1.00
	Slope	0.37	Depth to hard bedrock	0.96
			Depth to soft bedrock	0.46
			Slope	0.37
Mecklenburg	Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Slope	0.37
	Slope	0.37		

Table 10a.—Building Site Development (Part 1)—Continued

Map symbol and soil name	Dwellings without basements		Dwellings with basements	
	Rating class and limiting features	Value	Rating class and limiting features	Value
Wilkes--------------	Somewhat limited		Very limited	
	Depth to soft bedrock	0.50	Depth to soft bedrock	1.00
	Slope	0.37	Slope	0.37
			Depth to hard bedrock	0.01
WbA:				
Wehadkee------------	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
Cartecay------------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
WcB:				
Wickham-------------	Not limited		Not limited	
WmD:				
Wynott--------------	Very limited		Very limited	
	Shrink-swell	1.00	Shrink-swell	1.00
	Slope	0.37	Depth to hard bedrock	0.96
			Depth to soft bedrock	0.46
			Slope	0.37
Mecklenburg---------	Somewhat limited		Somewhat limited	
	Shrink-swell	0.50	Slope	0.37
	Slope	0.37		
Wilkes--------------	Somewhat limited		Very limited	
	Depth to soft bedrock	0.50	Depth to soft bedrock	1.00
	Slope	0.37	Slope	0.37
			Depth to hard bedrock	0.01

Table 10b.—Building Site Development (Part 2)

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
AaA:				
Altavista	Somewhat limited		Very limited	
	Flooding	0.40	Depth to saturated zone	1.00
	Low strength	0.24	Cutbanks cave	0.10
	Depth to saturated zone	0.22		
AaB:				
Altavista	Somewhat limited		Very limited	
	Low strength	0.24	Depth to saturated zone	1.00
	Depth to saturated zone	0.22	Cutbanks cave	0.10
AaC:				
Altavista	Somewhat limited		Very limited	
	Low strength	0.24	Depth to saturated zone	1.00
	Depth to saturated zone	0.22	Cutbanks cave	0.10
	Slope	0.01	Slope	0.01
AgB:				
Appling	Somewhat limited		Somewhat limited	
	Low strength	0.50	Cutbanks cave	0.10
Hard Labor	Somewhat limited		Somewhat limited	
	Low strength	0.50	Depth to saturated zone	0.99
			Cutbanks cave	0.10
AgC:				
Appling	Somewhat limited		Somewhat limited	
	Low strength	0.50	Cutbanks cave	0.10
	Slope	0.01	Slope	0.01
Hard Labor	Somewhat limited		Somewhat limited	
	Low strength	0.50	Depth to saturated zone	0.99
	Slope	0.01	Cutbanks cave	0.10
			Slope	0.01
ArE:				
Ashlar	Somewhat limited		Very limited	
	Depth to hard bedrock	0.90	Depth to hard bedrock	1.00
	Slope	0.63	Depth to soft bedrock	0.99
			Slope	0.63
			Cutbanks cave	0.10
Rion	Somewhat limited		Somewhat limited	
	Slope	0.63	Slope	0.63
			Cutbanks cave	0.10

Table 10b.—Building Site Development (Part 2)—Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
BaA:				
Buncombe------------	Very limited		Very limited	
	Flooding	1.00	Cutbanks cave	1.00
			Flooding	0.60
CaA:				
Cartecay------------	Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	0.94	Flooding	0.60
			Cutbanks cave	0.10
Toccoa--------------	Very limited		Somewhat limited	
	Flooding	1.00	Depth to saturated zone	0.73
			Flooding	0.60
			Cutbanks cave	0.10
CeB2:				
Cecil---------------	Somewhat limited		Somewhat limited	
	Low strength	0.50	Cutbanks cave	0.10
			Too clayey	0.03
CeC2:				
Cecil---------------	Somewhat limited		Somewhat limited	
	Low strength	0.50	Too clayey	0.27
	Slope	0.01	Cutbanks cave	0.10
			Slope	0.01
CpA:				
Congaree------------	Very limited		Somewhat limited	
	Flooding	1.00	Depth to saturated zone	0.95
			Flooding	0.60
			Cutbanks cave	0.10
CrA:				
Congaree------------	Very limited		Somewhat limited	
	Flooding	1.00	Depth to saturated zone	0.95
			Flooding	0.60
			Cutbanks cave	0.10
Cartecay------------	Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	0.94	Flooding	0.60
			Cutbanks cave	0.10
EnC:				
Enon----------------	Somewhat limited		Somewhat limited	
	Slope	0.01	Cutbanks cave	0.10
			Slope	0.01

Table 10b.—Building Site Development (Part 2)—Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
Wynott	Very limited		Somewhat limited	
	Low strength	1.00	Depth to hard bedrock	0.96
	Shrink-swell	1.00		
	Slope	0.01	Depth to soft bedrock	0.46
			Too clayey	0.12
			Cutbanks cave	0.10
			Slope	0.01
GaC:				
Grover	Not limited		Somewhat limited	
			Cutbanks cave	0.10
Mountain Park	Somewhat limited		Somewhat limited	
	Low strength	0.01	Depth to soft bedrock	0.29
			Cutbanks cave	0.10
GaE:				
Grover	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	0.10
Mountain Park	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Low strength	0.01	Depth to soft bedrock	0.29
			Cutbanks cave	0.10
GaF:				
Grover	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	0.10
Mountain Park	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Low strength	0.01	Depth to soft bedrock	0.29
			Cutbanks cave	0.10
HbB:				
Hiwassee	Not limited		Somewhat limited	
			Cutbanks cave	0.10
HbC:				
Hiwassee	Somewhat limited		Somewhat limited	
	Slope	0.01	Cutbanks cave	0.10
			Slope	0.01
LaD2:				
Lloyd	Somewhat limited		Somewhat limited	
	Low strength	0.50	Slope	0.37
	Slope	0.37	Cutbanks cave	0.10
Gwinnett	Somewhat limited		Somewhat limited	
	Slope	0.37	Slope	0.37
			Cutbanks cave	0.10
			Too clayey	0.03

Table 10b.—Building Site Development (Part 2)—Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
MdB2:				
Madison-------------	Somewhat limited		Somewhat limited	
	Low strength	0.50	Cutbanks cave	0.10
Bethlehem-----------	Somewhat limited		Somewhat limited	
	Low strength	0.50	Depth to soft bedrock	0.46
			Cutbanks cave	0.10
MdC2:				
Madison-------------	Somewhat limited		Somewhat limited	
	Low strength	0.50	Cutbanks cave	0.10
	Slope	0.01	Slope	0.01
Bethlehem-----------	Somewhat limited		Somewhat limited	
	Low strength	0.50	Depth to soft bedrock	0.46
	Slope	0.01	Cutbanks cave	0.10
			Slope	0.01
PaB2:				
Pacolet-------------	Somewhat limited		Somewhat limited	
	Low strength	0.50	Cutbanks cave	0.10
PaD2:				
Pacolet-------------	Somewhat limited		Somewhat limited	
	Slope	0.63	Slope	0.63
	Low strength	0.50	Cutbanks cave	0.10
PaE2:				
Pacolet-------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Low strength	0.50	Cutbanks cave	0.10
PgC2:				
Pacolet-------------	Somewhat limited		Somewhat limited	
	Low strength	0.50	Cutbanks cave	0.10
	Slope	0.01	Slope	0.01
Saw-----------------	Somewhat limited		Very limited	
	Depth to hard bedrock	0.97	Depth to hard bedrock	1.00
	Low strength	0.50	Cutbanks cave	0.10
	Slope	0.01	Slope	0.01
ReD:				
Rion----------------	Somewhat limited		Somewhat limited	
	Slope	0.63	Slope	0.63
			Cutbanks cave	0.10
ReE:				
Rion----------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	0.10
RoE:				
Rion----------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	0.10

Table 10b.—Building Site Development (Part 2)—Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
Louisburg	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
			Slope	1.00
RoF:				
Rion	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	0.10
Louisburg	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	1.00
UcC:				
Urban land	Not Rated		Not rated	
Altavista	Somewhat limited		Very limited	
	Low strength	0.24	Depth to saturated zone	1.00
	Depth to saturated zone	0.22	Cutbanks cave	0.10
UdC:				
Urban land	Not Rated		Not rated	
Appling	Somewhat limited		Somewhat limited	
	Low strength	0.50	Cutbanks cave	0.10
Hard Labor	Somewhat limited		Somewhat limited	
	Low strength	0.50	Depth to saturated zone	0.99
	Slope	0.01	Cutbanks cave	0.10
			Slope	0.01
UeE:				
Urban land	Not Rated		Not rated	
Ashlar	Somewhat limited		Very limited	
	Depth to hard bedrock	0.90	Depth to hard bedrock	1.00
	Slope	0.04	Depth to soft bedrock	0.99
			Cutbanks cave	0.10
			Slope	0.04
Rion	Somewhat limited		Somewhat limited	
	Slope	0.04	Cutbanks cave	0.10
			Slope	0.04
UfC2:				
Urban land	Not Rated		Not rated	
Cecil	Somewhat limited		Somewhat limited	
	Low strength	0.50	Cutbanks cave	0.10
			Too clayey	0.03
UgC:				
Urban land	Not Rated		Not rated	
Grover	Not limited		Somewhat limited	
			Cutbanks cave	0.10

Table 10b.—Building Site Development (Part 2)—Continued

Map symbol and soil name	Local roads and streets: Rating class and limiting features	Value	Shallow excavations: Rating class and limiting features	Value
Mountain Park-------	Somewhat limited		Somewhat limited	
	Low strength	0.01	Depth to soft bedrock	0.29
			Cutbanks cave	0.10
UgE:				
Urban land----------	Not Rated		Not rated	
Grover--------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	0.10
Mountain Park-------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Low strength	0.01	Depth to soft bedrock	0.29
			Cutbanks cave	0.10
UmC2:				
Urban land----------	Not Rated		Not rated	
Madison-------------	Somewhat limited		Somewhat limited	
	Low strength	0.50	Cutbanks cave	0.10
Bethlehem-----------	Somewhat limited		Somewhat limited	
	Low strength	0.50	Depth to soft bedrock	0.46
			Cutbanks cave	0.10
UpC2:				
Urban land----------	Not Rated		Not rated	
Pacolet-------------	Somewhat limited		Somewhat limited	
	Low strength	0.50	Cutbanks cave	0.10
Saw-----------------	Somewhat limited		Very limited	
	Depth to hard bedrock	0.97	Depth to hard bedrock	1.00
	Low strength	0.50	Cutbanks cave	0.10
	Slope	0.01	Slope	0.01
UrE:				
Urban land----------	Not Rated		Not rated	
Rion----------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	0.10
UsE:				
Urban land----------	Not Rated		Not rated	
Rion----------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
			Cutbanks cave	0.10
Louisburg-----------	Very limited		Very limited	
	Slope	1.00	Cutbanks cave	1.00
			Slope	1.00

Table 10b.—Building Site Development (Part 2)—Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
UwD:				
Urban land	Not Rated		Not rated	
Wynott	Very limited		Somewhat limited	
	Low strength	1.00	Depth to hard bedrock	0.96
	Shrink-swell	1.00	Depth to soft bedrock	0.46
	Slope	0.37	Slope	0.37
			Too clayey	0.12
			Cutbanks cave	0.10
Mecklenburg	Very limited		Somewhat limited	
	Low strength	1.00	Slope	0.37
	Shrink-swell	0.50	Cutbanks cave	0.10
	Slope	0.37	Too clayey	0.04
Wilkes	Somewhat limited		Very limited	
	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
	Slope	0.37	Slope	0.37
			Cutbanks cave	0.10
			Depth to hard bedrock	0.01
WbA:				
Wehadkee	Very limited		Very limited	
	Ponding	1.00	Ponding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Flooding	1.00	Flooding	0.60
	Low strength	1.00	Cutbanks cave	0.10
Cartecay	Very limited		Very limited	
	Flooding	1.00	Depth to saturated zone	1.00
	Depth to saturated zone	0.94	Flooding	0.60
			Cutbanks cave	0.10
WcB:				
Wickham	Not limited		Somewhat limited	
			Cutbanks cave	0.10
WmD:				
Wynott	Very limited		Somewhat limited	
	Low strength	1.00	Depth to hard bedrock	0.96
	Shrink-swell	1.00	Depth to soft bedrock	0.46
	Slope	0.37	Slope	0.37
			Too clayey	0.12
			Cutbanks cave	0.10
Mecklenburg	Very limited		Somewhat limited	
	Low strength	1.00	Slope	0.37
	Shrink-swell	0.50	Cutbanks cave	0.10
	Slope	0.37	Too clayey	0.04

Table 10b.—Building Site Development (Part 2)—Continued

Map symbol and soil name	Local roads and streets		Shallow excavations	
	Rating class and limiting features	Value	Rating class and limiting features	Value
Wilkes--------------	Somewhat limited		Very limited	
	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
	Slope	0.37	Slope	0.37
			Cutbanks cave	0.10
			Depth to hard bedrock	0.01

Table 11.—Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
AaA:				
Altavista	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.50	Seepage	0.50
	Flooding	0.40	Flooding	0.40
AaB:				
Altavista	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.50	Seepage	0.50
			Slope	0.32
AaC:				
Altavista	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.50	Slope	1.00
	Slope	0.01	Seepage	0.50
AgB:				
Appling	Somewhat limited		Somewhat limited	
	Slow water movement	0.50	Seepage	0.50
			Slope	0.32
Hard Labor	Very limited		Very limited	
	Slow water movement	1.00	Seepage	1.00
	Depth to saturated zone	1.00	Slope	0.32
			Depth to saturated zone	0.08
AgC:				
Appling	Somewhat limited		Very limited	
	Slow water movement	0.50	Slope	1.00
	Slope	0.01	Seepage	0.50
Hard Labor	Very limited		Very limited	
	Slow water movement	1.00	Seepage	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.01	Depth to saturated zone	0.08
ArE:				
Ashlar	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Seepage, bottom layer	1.00	Depth to soft bedrock	1.00
	Slope	0.63	Seepage	1.00
			Slope	1.00

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
Rion----------------	Somewhat limited		Very limited	
	Slope	0.63	Slope	1.00
	Slow water movement	0.32	Seepage	0.68
BaA:				
Buncombe------------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Seepage, bottom layer	1.00	Seepage	1.00
	Filtering capacity	1.00		
CaA:				
Cartecay------------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Depth to saturated zone	1.00
Toccoa--------------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Depth to	0.92
			Depth to saturated zone	0.92
CeB2:				
Cecil---------------	Somewhat limited		Somewhat limited	
	Slow water movement	0.50	Seepage	0.50
			Slope	0.08
CeC2:				
Cecil---------------	Somewhat limited		Very limited	
	Slow water movement	0.50	Slope	1.00
			Seepage	0.50
	Slope	0.01		
CpA:				
Congaree------------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.50	Seepage	0.50
CrA:				
Congaree------------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.50	Seepage	0.50
Cartecay------------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Depth to saturated zone	1.00

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
EnC:				
Enon----------------	Very limited		Very limited	
	Slow water movement	1.00	Slope	1.00
	Slope	0.01	Seepage	0.50
Wynott--------------	Very limited		Very limited	
	Slow water movement	1.00	Depth to soft bedrock	1.00
	Depth to bedrock	1.00	Slope	1.00
	Slope	0.01	Depth to hard bedrock	0.96
			Seepage	0.18
GaC:				
Grover--------------	Somewhat limited		Very limited	
	Slow water movement	0.32	Seepage	1.00
			Slope	0.92
Mountain Park-------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to soft bedrock	1.00
	Slow water movement	0.32	Slope	0.92
			Seepage	0.68
GaE:				
Grover--------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Slow water movement	0.32	Seepage	1.00
Mountain Park-------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to soft bedrock	1.00
	Slope	1.00	Slope	1.00
	Slow water movement	0.32	Seepage	0.68
GaF:				
Grover--------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Slow water movement	0.32	Seepage	1.00
Mountain Park-------	Very limited		Very limited	
	Slope	1.00	Depth to soft bedrock	1.00
	Depth to bedrock	1.00	Slope	1.00
	Slow water movement	0.32	Seepage	0.68
HbB:				
Hiwassee------------	Somewhat limited		Somewhat limited	
	Slow water movement	0.50	Seepage	0.50
			Slope	0.32
HbC:				
Hiwassee------------	Somewhat limited		Very limited	
	Slow water movement	0.50	Slope	1.00
	Slope	0.01	Seepage	0.50

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
LaD2:				
Lloyd	Somewhat limited		Very limited	
	Slow water movement	0.50	Slope	1.00
	Slope	0.37	Seepage	0.50
Gwinnett	Somewhat limited		Very limited	
	Depth to bedrock	0.99	Slope	1.00
	Slow water movement	0.50	Depth to soft bedrock	0.99
	Slope	0.37	Seepage	0.50
MdB2:				
Madison	Somewhat limited		Somewhat limited	
	Slow water movement	0.50	Seepage	0.50
			Slope	0.32
Bethlehem	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to soft bedrock	1.00
	Slow water movement	0.50	Seepage	0.50
			Slope	0.32
MdC2:				
Madison	Somewhat limited		Very limited	
	Slow water movement	0.50	Slope	1.00
	Slope	0.01	Seepage	0.50
Bethlehem	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to soft bedrock	1.00
	Slow water movement	0.50	Slope	1.00
	Slope	0.01	Seepage	0.50
PaB2:				
Pacolet	Somewhat limited		Somewhat limited	
	Slow water movement	0.50	Seepage	0.50
			Slope	0.32
PaD2:				
Pacolet	Somewhat limited		Very limited	
	Slope	0.63	Slope	1.00
	Slow water movement	0.50	Seepage	0.50
PaE2:				
Pacolet	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Slow water movement	0.50	Seepage	0.50
PgC2:				
Pacolet	Somewhat limited		Very limited	
	Slow water movement	0.50	Slope	1.00
	Slope	0.01	Seepage	0.50

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
Saw	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Slope	0.01	Slope	1.00
			Seepage	0.50
ReD:				
Rion	Somewhat limited		Very limited	
	Slope	0.63	Slope	1.00
	Slow water movement	0.32	Seepage	0.68
ReE:				
Rion	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Slow water movement	0.32	Seepage	0.68
RoE:				
Rion	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Slow water movement	0.32	Seepage	0.68
Louisburg	Very limited		Very limited	
	Seepage, bottom layer	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Filtering capacity	1.00		
	Depth to bedrock	0.01		
RoF:				
Rion	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Slow water movement	0.32	Seepage	0.68
Louisburg	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Seepage, bottom layer	1.00	Seepage	1.00
	Filtering capacity	1.00		
	Depth to bedrock	0.01		
UcC:				
Urban land	Not rated		Not rated	
Altavista	Very limited		Very limited	
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.50	Slope	0.68
			Seepage	0.50
UdC:				
Urban land	Not rated		Not rated	
Appling	Somewhat limited		Somewhat limited	
	Slow water movement	0.50	Slope	0.68
			Seepage	0.50

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
Hard Labor----------	Very limited		Very limited	
	Slow water movement	1.00	Seepage	1.00
	Depth to saturated zone	1.00	Slope	1.00
	Slope	0.01	Depth to saturated zone	0.08
UeE:				
Urban land----------	Not rated		Not rated	
Ashlar--------------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Seepage, bottom layer	1.00	Depth to soft bedrock	1.00
	Slope	0.04	Seepage	1.00
			Slope	1.00
Rion----------------	Somewhat limited		Very limited	
	Slow water movement	0.32	Slope	1.00
	Slope	0.04	Seepage	0.68
UfC2:				
Urban land----------	Not rated		Not rated	
Cecil---------------	Somewhat limited		Somewhat limited	
	Slow water movement	0.50	Slope	0.68
			Seepage	0.50
UgC:				
Urban land----------	Not rated		Not rated	
Grover--------------	Somewhat limited		Very limited	
	Slow water movement	0.32	Seepage	1.00
			Slope	0.68
Mountain Park-------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to soft bedrock	1.00
	Slow water movement	0.32	Slope	0.68
			Seepage	0.68
UgE:				
Urban land----------	Not rated		Not rated	
Grover--------------	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Slow water movement	0.32	Seepage	1.00
Mountain Park-------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to soft bedrock	1.00
	Slope	1.00	Slope	1.00
	Slow water movement	0.32	Seepage	0.68

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields: Rating class and limiting features	Value	Sewage lagoons: Rating class and limiting features	Value
UmC2:				
Urban land	Not rated		Not rated	
Madison	Somewhat limited		Somewhat limited	
	Slow water movement	0.50	Slope	0.68
			Seepage	0.50
Bethlehem	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to soft bedrock	1.00
	Slow water movement	0.50	Slope	0.68
			Seepage	0.50
UpC2:				
Urban land	Not rated		Not rated	
Pacolet	Somewhat limited		Somewhat limited	
	Slow water movement	0.50	Slope	0.68
			Seepage	0.50
Saw	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to hard bedrock	1.00
	Slope	0.01	Slope	1.00
			Seepage	0.50
UrE:				
Urban land	Not rated		Not rated	
Rion	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Slow water movement	0.32	Seepage	0.68
UsE:				
Urban land	Not rated		Not rated	
Rion	Very limited		Very limited	
	Slope	1.00	Slope	1.00
	Slow water movement	0.32	Seepage	0.68
Louisburg	Very limited		Very limited	
	Seepage, bottom layer	1.00	Slope	1.00
	Slope	1.00	Seepage	1.00
	Filtering capacity	1.00		
	Depth to bedrock	0.01		
UwD:				
Urban land	Not rated		Not rated	
Wynott	Very limited		Very limited	
	Slow water movement	1.00	Depth to soft bedrock	1.00
	Depth to bedrock	1.00	Slope	1.00
	Slope	0.37	Depth to hard bedrock	0.96
			Seepage	0.18

Table 11.—Sanitary Facilities—Continued

Map symbol and soil name	Septic tank absorption fields		Sewage lagoons	
	Rating class and limiting features	Value	Rating class and limiting features	Value
Mecklenburg----------	Very limited		Very limited	
	Slow water movement	1.00	Slope	1.00
	Slope	0.37	Seepage	0.50
Wilkes---------------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to soft bedrock	1.00
	Slope	0.37	Slope	1.00
			Seepage	0.50
			Depth to hard bedrock	0.01
WbA:				
Wehadkee-------------	Very limited		Very limited	
	Flooding	1.00	Ponding	1.00
	Ponding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Depth to saturated zone	1.00
	Slow water movement	0.50	Seepage	0.50
Cartecay-------------	Very limited		Very limited	
	Flooding	1.00	Flooding	1.00
	Depth to saturated zone	1.00	Seepage	1.00
	Seepage, bottom layer	1.00	Depth to saturated zone	1.00
WcB:				
Wickham--------------	Somewhat limited		Somewhat limited	
	Slow water movement	0.50	Seepage	0.50
			Slope	0.32
WmD:				
Wynott---------------	Very limited		Very limited	
	Slow water movement	1.00	Depth to soft bedrock	1.00
	Depth to bedrock	1.00	Slope	1.00
	Slope	0.37	Depth to hard bedrock	0.96
			Seepage	0.18
Mecklenburg----------	Very limited		Very limited	
	Slow water movement	1.00	Slope	1.00
			Seepage	0.50
	Slope	0.37		
Wilkes---------------	Very limited		Very limited	
	Depth to bedrock	1.00	Depth to soft bedrock	1.00
	Slope	0.37	Slope	1.00
			Seepage	0.50
			Depth to hard bedrock	0.01

Table 12.—Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The smaller the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Potential source of sand		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA:						
Altavista------------	Poor		Fair		Fair	
	Thickest layer	0.00	Wetness depth	0.50	Wetness depth	0.50
	Bottom layer	0.00	Low strength	0.76	Too clayey	0.58
AaB:						
Altavista------------	Poor		Fair		Fair	
	Thickest layer	0.00	Wetness depth	0.50	Wetness depth	0.50
	Bottom layer	0.00	Low strength	0.76	Too clayey	0.58
AaC:						
Altavista------------	Poor		Fair		Fair	
	Thickest layer	0.00	Wetness depth	0.50	Wetness depth	0.50
	Bottom layer	0.00	Low strength	0.76	Too clayey	0.58
AgB:						
Appling--------------	Poor		Fair		Poor	
	Thickest layer	0.00	Low strength	0.50	Too clayey	0.00
	Bottom layer	0.00				
Hard Labor-----------	Poor		Fair		Poor	
	Thickest layer	0.00	Low strength	0.50	Too clayey	0.00
	Bottom layer	0.00	Wetness depth	0.95	Wetness depth	0.95
AgC:						
Appling--------------	Poor		Fair		Poor	
	Thickest layer	0.00	Low strength	0.50	Too clayey	0.00
	Bottom layer	0.00				
Hard Labor-----------	Poor		Fair		Poor	
	Thickest layer	0.00	Low strength	0.50	Too clayey	0.00
	Bottom layer	0.00	Wetness depth	0.95	Wetness depth	0.95
ArE:						
Ashlar---------------	Poor		Poor		Fair	
	Thickest layer	0.00	Depth to bedrock	0.00	Depth to bedrock	0.01
	Bottom layer	0.00			Slope	0.37
Rion-----------------	Poor		Good		Fair	
	Thickest layer	0.00			Slope	0.37
	Bottom layer	0.00				
BaA:						
Buncombe-------------	Fair		Good		Poor	
	Thickest layer	0.00			Too sandy	0.00
	Bottom layer	0.59				
CaA:						
Cartecay-------------	Poor		Fair		Fair	
	Thickest layer	0.00	Wetness depth	0.04	Wetness depth	0.04
	Bottom layer	0.00				
Toccoa---------------	Poor		Good		Good	
	Thickest layer	0.00				
	Bottom layer	0.00				

Table 12.—Construction Materials—Continued

Map symbol and soil name	Potential source of sand: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
CeB2:						
Cecil----------------	Poor		Fair		Poor	
	Thickest layer	0.00	Low strength	0.50	Too clayey	0.00
	Bottom layer	0.00				
CeC2:						
Cecil----------------	Poor		Fair		Poor	
	Thickest layer	0.00	Low strength	0.50	Too clayey	0.00
	Bottom layer	0.00				
CpA:						
Congaree-------------	Poor		Good		Good	
	Thickest layer	0.00				
	Bottom layer	0.00				
CrA:						
Congaree-------------	Poor		Good		Good	
	Thickest layer	0.00				
	Bottom layer	0.00				
Cartecay-------------	Poor		Fair		Fair	
	Thickest layer	0.00	Wetness depth	0.04	Wetness depth	0.04
	Bottom layer	0.00				
EnC:						
Enon-----------------	Poor		Good		Good	
	Thickest layer	0.00				
	Bottom layer	0.00				
Wynott---------------	Poor		Poor		Poor	
	Thickest layer	0.00	Low strength	0.00	Too clayey	0.00
	Bottom layer	0.00	Depth to bedrock	0.00	Depth to bedrock	0.54
			Shrink-swell	0.86	Rock fragments	0.94
GaC:						
Grover---------------	Poor		Good		Fair	
	Thickest layer	0.00			Too clayey	0.58
	Bottom layer	0.00				
Mountain Park--------	Poor		Poor		Fair	
	Thickest layer	0.00	Depth to bedrock	0.00	Too clayey	0.58
	Bottom layer	0.00	Low strength	0.99	Depth to bedrock	0.71
GaE:						
Grover---------------	Poor		Good		Poor	
	Thickest layer	0.00			Slope	0.00
	Bottom layer	0.00			Too clayey	0.58
Mountain Park--------	Poor		Poor		Poor	
	Thickest layer	0.00	Depth to bedrock	0.00	Slope	0.00
	Bottom layer	0.00	Low strength	0.99	Too clayey	0.58
					Depth to bedrock	0.71
GaF:						
Grover---------------	Poor		Poor		Poor	
	Thickest layer	0.00	Slope	0.00	Slope	0.00
	Bottom layer	0.00			Too clayey	0.58

Table 12.—Construction Materials—Continued

Map symbol and soil name	Potential source of sand: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Mountain Park	Poor		Poor		Poor	
	Thickest layer	0.00	Depth to bedrock	0.00	Slope	0.00
	Bottom layer	0.00	Slope	0.00	Too clayey	0.58
			Low strength	0.99	Depth to bedrock	0.71
HbB:						
Hiwassee	Poor		Good		Poor	
	Thickest layer	0.00			Too clayey	0.00
	Bottom layer	0.00				
HbC:						
Hiwassee	Poor		Good		Poor	
	Thickest layer	0.00			Too clayey	0.00
	Bottom layer	0.00				
LaD2:						
Lloyd	Poor		Good		Poor	
	Thickest layer	0.00			Too clayey	0.00
	Bottom layer	0.00			Slope	0.63
Gwinnett	Poor		Fair		Poor	
	Thickest layer	0.00	Depth to bedrock	0.01	Too clayey	0.00
	Bottom layer	0.00			Slope	0.63
MdB2:						
Madison	Poor		Fair		Poor	
	Thickest layer	0.00	Low strength	0.74	Too clayey	0.00
	Bottom layer	0.00				
Bethlehem	Poor		Poor		Poor	
	Thickest layer	0.00	Depth to bedrock	0.00	Too clayey	0.00
	Bottom layer	0.00	Low strength	0.50	Depth to bedrock	0.54
MdC2:						
Madison	Poor		Fair		Poor	
	Thickest layer	0.00	Low strength	0.74	Too clayey	0.00
	Bottom layer	0.00				
Bethlehem	Poor		Poor		Poor	
	Thickest layer	0.00	Depth to bedrock	0.00	Too clayey	0.00
	Bottom layer	0.00	Low strength	0.50	Depth to bedrock	0.54
PaB2:						
Pacolet	Poor		Good		Poor	
	Thickest layer	0.00			Too clayey	0.00
	Bottom layer	0.00				
PaD2:						
Pacolet	Poor		Good		Poor	
	Thickest layer	0.00			Too clayey	0.00
	Bottom layer	0.00			Slope	0.37
PaE2:						
Pacolet	Poor		Fair		Poor	
	Thickest layer	0.00	Slope	0.50	Slope	0.00
	Bottom layer	0.00			Too clayey	0.00
PgC2:						
Pacolet	Poor		Good		Poor	
	Thickest layer	0.00			Too clayey	0.00
	Bottom layer	0.00			Rock fragments	0.99

Table 12.—Construction Materials—Continued

Map symbol and soil name	Potential source of sand: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Saw------------------	Poor		Poor		Poor	
	Thickest layer	0.00	Depth to bedrock	0.00	Too clayey	0.00
	Bottom layer	0.00	Low strength	0.50	Depth to bedrock	0.03
					Rock fragments	0.99
ReD:						
Rion-----------------	Poor		Good		Fair	
	Thickest layer	0.00			Slope	0.37
	Bottom layer	0.00				
ReE:						
Rion-----------------	Poor		Fair		Poor	
	Thickest layer	0.00	Slope	0.82	Slope	0.00
	Bottom layer	0.00				
RoE:						
Rion-----------------	Poor		Good		Poor	
	Thickest layer	0.00			Slope	0.00
	Bottom layer	0.00				
Louisburg------------	Poor		Good		Poor	
	Thickest layer	0.00			Slope	0.00
	Bottom layer	0.00				
RoF:						
Rion-----------------	Poor		Poor		Poor	
	Thickest layer	0.00	Slope	0.00	Slope	0.00
	Bottom layer	0.00				
Louisburg------------	Poor		Poor		Poor	
	Thickest layer	0.00	Slope	0.00	Slope	0.00
	Bottom layer	0.00				
UcC:						
Urban land-----------	Not Rated		Not rated		Not Rated	
Altavista------------	Poor		Fair		Fair	
	Thickest layer	0.00	Wetness depth	0.50	Wetness depth	0.50
	Bottom layer	0.00	Low strength	0.76	Too clayey	0.58
UdC:						
Urban land-----------	Not Rated		Not rated		Not Rated	
Appling--------------	Poor		Fair		Poor	
	Thickest layer	0.00	Low strength	0.50	Too clayey	0.00
	Bottom layer	0.00				
Hard Labor-----------	Poor		Fair		Poor	
	Thickest layer	0.00	Low strength	0.50	Too clayey	0.00
	Bottom layer	0.00	Wetness depth	0.95	Wetness depth	0.95
UeE:						
Urban land-----------	Not Rated		Not rated		Not Rated	
Ashlar---------------	Poor		Poor		Fair	
	Thickest layer	0.00	Depth to bedrock	0.00	Depth to bedrock	0.01
	Bottom layer	0.00			Slope	0.96

Table 12.—Construction Materials—Continued

Map symbol and soil name	Potential source of sand: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
Rion	Poor		Good		Fair	
	Thickest layer	0.00			Slope	0.96
	Bottom layer	0.00				
UfC2:						
Urban land	Not Rated		Not rated		Not Rated	
Cecil	Poor		Fair		Poor	
	Thickest layer	0.00	Low strength	0.50	Too clayey	0.00
	Bottom layer	0.00				
UgC:						
Urban land	Not Rated		Not rated		Not Rated	
Grover	Poor		Good		Fair	
	Thickest layer	0.00			Too clayey	0.58
	Bottom layer	0.00				
Mountain Park	Poor		Poor		Fair	
	Thickest layer	0.00	Depth to bedrock	0.00	Too clayey	0.58
	Bottom layer	0.00	Low strength	0.99	Depth to bedrock	0.71
UgE:						
Urban land	Not Rated		Not rated		Not Rated	
Grover	Poor		Fair		Poor	
	Thickest layer	0.00	Slope	0.50	Slope	0.00
	Bottom layer	0.00			Too clayey	0.58
Mountain Park	Poor		Poor		Poor	
	Thickest layer	0.00	Depth to bedrock	0.00	Slope	0.00
	Bottom layer	0.00	Slope	0.50	Too clayey	0.58
			Low strength	0.99	Depth to bedrock	0.71
UmC2:						
Urban land	Not Rated		Not rated		Not Rated	
Madison	Poor		Fair		Poor	
	Thickest layer	0.00	Low strength	0.74	Too clayey	0.00
	Bottom layer	0.00				
Bethlehem	Poor		Poor		Poor	
	Thickest layer	0.00	Depth to bedrock	0.00	Too clayey	0.00
	Bottom layer	0.00	Low strength	0.50	Depth to bedrock	0.54
UpC2:						
Urban land	Not Rated		Not rated		Not Rated	
Pacolet	Poor		Good		Poor	
	Thickest layer	0.00			Too clayey	0.00
	Bottom layer	0.00				
Saw	Poor		Poor		Poor	
	Thickest layer	0.00	Depth to bedrock	0.00	Too clayey	0.00
	Bottom layer	0.00	Low strength	0.50	Depth to bedrock	0.03
					Rock fragments	0.99

Table 12.—Construction Materials—Continued

Map symbol and soil name	Potential source of sand: Rating class and limiting features	Value	Potential source of roadfill: Rating class and limiting features	Value	Potential source of topsoil: Rating class and limiting features	Value
UrE:						
Urban land-----------	Not Rated		Not rated		Not Rated	
Rion-----------------	Poor		Fair		Poor	
	Thickest layer	0.00	Slope	0.50	Slope	0.00
	Bottom layer	0.00				
UsE:						
Urban land-----------	Not Rated		Not rated		Not Rated	
Rion-----------------	Poor		Fair		Poor	
	Thickest layer	0.00	Slope	0.50	Slope	0.00
	Bottom layer	0.00				
Louisburg------------	Poor		Fair		Poor	
	Thickest layer	0.00	Slope	0.50	Slope	0.00
	Bottom layer	0.00				
UwD:						
Urban land-----------	Not Rated		Not rated		Not Rated	
Wynott---------------	Poor		Poor		Poor	
	Thickest layer	0.00	Low strength	0.00	Too clayey	0.00
	Bottom layer	0.00	Depth to bedrock	0.00	Depth to bedrock	0.54
			Shrink-swell	0.86	Slope	0.63
Mecklenburg----------	Poor		Good		Poor	
	Thickest layer	0.00			Too clayey	0.00
	Bottom layer	0.00			Slope	0.63
Wilkes---------------	Poor		Poor		Poor	
	Thickest layer	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
	Bottom layer	0.00			Slope	0.63
WbA:						
Wehadkee-------------	Poor		Poor		Poor	
	Thickest layer	0.00	Wetness depth	0.00	Wetness depth	0.00
	Bottom layer	0.00			Too clayey	0.77
Cartecay-------------	Poor		Fair		Fair	
	Thickest layer	0.00	Wetness depth	0.04	Wetness depth	0.04
	Bottom layer	0.00				
WcB:						
Wickham--------------	Poor		Good		Fair	
	Thickest layer	0.00			Too clayey	0.58
	Bottom layer	0.00				
WmD:						
Wynott---------------	Poor		Poor		Poor	
	Thickest layer	0.00	Low strength	0.00	Too clayey	0.00
	Bottom layer	0.00	Depth to bedrock	0.00	Depth to bedrock	0.54
			Shrink-swell	0.86	Slope	0.63
Mecklenburg----------	Poor		Good		Poor	
	Thickest layer	0.00			Too clayey	0.00
	Bottom layer	0.00			Slope	0.63

Table 12.—Construction Materials—Continued

Map symbol and soil name	Potential source of sand		Potential source of roadfill		Potential source of topsoil	
	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Wilkes---------------	Poor		Poor		Poor	
	Thickest layer	0.00	Depth to bedrock	0.00	Depth to bedrock	0.00
	Bottom layer	0.00			Slope	0.63

Table 13.—Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table.)

Map symbol and soil name	Pond reservoir areas		Embankments, dikes and levees	
	Rating class and limiting features	Value	Rating class and limiting features	Value
AaA:				
Altavista	Somewhat limited		Very limited	
	Seepage	0.70	Depth to saturated zone	0.99
AaB:				
Altavista	Somewhat limited		Very limited	
	Seepage	0.70	Depth to saturated zone	0.99
AaC:				
Altavista	Somewhat limited		Very limited	
	Seepage	0.70	Depth to saturated zone	0.99
AgB:				
Appling	Somewhat limited		Somewhat limited	
	Seepage	0.70	Seepage	0.03
Hard Labor	Somewhat limited		Somewhat limited	
	Seepage	0.01	Depth to saturated zone	0.75
AgC:				
Appling	Somewhat limited		Somewhat limited	
	Seepage	0.70	Seepage	0.03
Hard Labor	Somewhat limited		Somewhat limited	
	Seepage	0.01	Depth to saturated zone	0.75
ArE:				
Ashlar	Very limited		Very limited	
	Seepage	1.00	Thin layer	0.99
	Depth to bedrock	0.98	Seepage	0.03
	Slope	0.04		
Rion	Somewhat limited		Somewhat limited	
	Seepage	0.81	Seepage	0.04
	Slope	0.04		
BaA:				
Buncombe	Very limited		Somewhat limited	
	Seepage	1.00	Seepage	0.34
CaA:				
Cartecay	Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00
			Seepage	0.03
Toccoa	Very limited		Somewhat limited	
	Seepage	1.00	Seepage	0.02
			Depth to saturated zone	0.02

Table 13.—Water Management—Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes and levees	
	Rating class and limiting features	Value	Rating class and limiting features	Value
CeB2:				
Cecil----------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Piping	0.10
CeC2:				
Cecil----------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Piping	0.10
CpA:				
Congaree------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Piping	0.92
			Depth to saturated zone	0.46
			Seepage	0.01
CrA:				
Congaree------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Piping	0.92
			Depth to saturated zone	0.46
			Seepage	0.01
Cartecay------------	Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00
			Seepage	0.03
EnC:				
Enon-----------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Seepage	0.05
Wynott--------------	Somewhat limited		Somewhat limited	
	Seepage	0.43	Thin layer	0.86
	Depth to bedrock	0.37	Piping	0.08
			Seepage	0.05
GaC:				
Grover--------------	Somewhat limited		Somewhat limited	
	Seepage	0.81	Seepage	0.05
Mountain Park-------	Somewhat limited		Somewhat limited	
	Seepage	0.81	Thin layer	0.81
	Depth to bedrock	0.08	Seepage	0.01
GaE:				
Grover--------------	Somewhat limited		Somewhat limited	
	Seepage	0.81	Seepage	0.05
	Slope	0.23		
Mountain Park-------	Somewhat limited		Somewhat limited	
	Seepage	0.81	Thin layer	0.81
	Slope	0.23	Seepage	0.01
	Depth to bedrock	0.08		
GaF:				
Grover--------------	Very limited		Somewhat limited	
	Slope	1.00	Seepage	0.05
	Seepage	0.81		

Table 13.—Water Management—Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes and levees	
	Rating class and limiting features	Value	Rating class and limiting features	Value
Mountain Park-------	Very limited		Somewhat limited	
	Slope	1.00	Thin layer	0.81
	Seepage	0.81	Seepage	0.01
	Depth to bedrock	0.08		
HbB:				
Hiwassee------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Piping	0.03
HbC:				
Hiwassee------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Piping	0.03
LaD2:				
Lloyd---------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Seepage	0.05
	Slope	0.01		
Gwinnett------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Thin layer	0.42
	Slope	0.01		
	Depth to bedrock	0.01		
MdB2:				
Madison-------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Seepage	0.04
Bethlehem-----------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Thin layer	0.86
	Depth to bedrock	0.11		
MdC2:				
Madison-------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Seepage	0.04
			Piping	0.01
Bethlehem-----------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Thin layer	0.86
	Depth to bedrock	0.11		
PaB2:				
Pacolet-------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Seepage	0.04
PaD2:				
Pacolet-------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Seepage	0.04
	Slope	0.04		
PaE2:				
Pacolet-------------	Somewhat limited		Somewhat limited	
	Slope	0.77	Seepage	0.04
	Seepage	0.70		
PgC2:				
Pacolet-------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Seepage	0.04
Saw-----------------	Somewhat limited		Very limited	
	Depth to bedrock	0.99	Thin layer	0.99
	Seepage	0.70		

Table 13.—Water Management—Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes and levees: Rating class and limiting features	Value
ReD:				
Rion	Somewhat limited		Somewhat limited	
	Seepage	0.81	Seepage	0.02
	Slope	0.04		
ReE:				
Rion	Somewhat limited		Somewhat limited	
	Seepage	0.81	Seepage	0.02
	Slope	0.56		
RoE:				
Rion	Somewhat limited		Somewhat limited	
	Seepage	0.81	Seepage	0.03
	Slope	0.23		
Louisburg	Very limited		Somewhat limited	
	Seepage	1.00	Seepage	0.10
	Slope	0.23		
RoF:				
Rion	Very limited		Somewhat limited	
	Slope	1.00	Seepage	0.03
	Seepage	0.81		
Louisburg	Very limited		Somewhat limited	
	Seepage	1.00	Seepage	0.10
	Slope	1.00		
UcC:				
Urban land	Not Rated		Not rated	
Altavista	Somewhat limited		Very limited	
	Seepage	0.70	Depth to saturated zone	0.99
UdC:				
Urban land	Not Rated		Not rated	
Appling	Somewhat limited		Somewhat limited	
	Seepage	0.70	Seepage	0.03
Hard Labor	Somewhat limited		Somewhat limited	
	Seepage	0.01	Depth to saturated zone	0.75
UeE:				
Urban land	Not Rated		Not rated	
Ashlar	Very limited		Very limited	
	Seepage	1.00	Thin layer	0.99
	Depth to bedrock	0.98	Seepage	0.03
Rion	Somewhat limited		Somewhat limited	
	Seepage	0.81	Seepage	0.04
UfC2:				
Urban land	Not Rated		Not rated	
Cecil	Somewhat limited		Somewhat limited	
	Seepage	0.70	Piping	0.86

Table 13.—Water Management—Continued

Map symbol and soil name	Pond reservoir areas		Embankments, dikes and levees	
	Rating class and limiting features	Value	Rating class and limiting features	Value
UgC:				
Urban land----------	Not Rated		Not rated	
Grover--------------	Somewhat limited		Somewhat limited	
	Seepage	0.81	Seepage	0.05
Mountain Park-------	Somewhat limited		Somewhat limited	
	Seepage	0.81	Thin layer	0.81
	Depth to bedrock	0.08	Seepage	0.01
UgE:				
Urban land----------	Not Rated		Not rated	
Grover--------------	Somewhat limited		Somewhat limited	
	Seepage	0.81	Seepage	0.05
	Slope	0.77		
Mountain Park-------	Somewhat limited		Somewhat limited	
	Seepage	0.81	Thin layer	0.81
	Slope	0.77	Seepage	0.01
	Depth to bedrock	0.08		
UmC2:				
Urban land----------	Not Rated		Not rated	
Madison-------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Seepage	0.04
			Piping	0.01
Bethlehem-----------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Thin layer	0.86
	Depth to bedrock	0.11		
UpC2:				
Urban land----------	Not Rated		Not rated	
Pacolet-------------	Somewhat limited		Somewhat limited	
	Seepage	0.70	Seepage	0.04
Saw-----------------	Somewhat limited		Very limited	
	Depth to bedrock	0.99	Thin layer	0.99
	Seepage	0.70		
UrE:				
Urban land----------	Not Rated		Not rated	
Rion----------------	Somewhat limited		Somewhat limited	
	Seepage	0.81	Seepage	0.02
	Slope	0.77		
UsE:				
Urban land----------	Not Rated		Not rated	
Rion----------------	Somewhat limited		Somewhat limited	
	Seepage	0.81	Seepage	0.02
	Slope	0.77		
Louisburg-----------	Very limited		Somewhat limited	
	Seepage	1.00	Seepage	0.10
	Slope	0.77		

Table 13.—Water Management—Continued

Map symbol and soil name	Pond reservoir areas: Rating class and limiting features	Value	Embankments, dikes and levees: Rating class and limiting features	Value
UwD:				
Urban land	Not Rated		Not rated	
Wynott	Somewhat limited		Somewhat limited	
	Seepage	0.43	Thin layer	0.86
	Depth to bedrock	0.37	Piping	0.08
	Slope	0.01	Seepage	0.05
Mecklenburg	Somewhat limited		Somewhat limited	
	Seepage	0.70	Seepage	0.05
	Slope	0.01		
Wilkes	Somewhat limited		Very limited	
	Depth to bedrock	0.53	Thin layer	1.00
	Seepage	0.43	Seepage	0.03
	Slope	0.01		
WbA:				
Wehadkee	Somewhat limited		Very limited	
	Seepage	0.70	Ponding	1.00
			Depth to saturated zone	1.00
			Seepage	0.03
Cartecay	Very limited		Very limited	
	Seepage	1.00	Depth to saturated zone	1.00
			Seepage	0.03
WcB:				
Wickham	Somewhat limited		Somewhat limited	
	Seepage	0.70	Seepage	0.02
WmD:				
Wynott	Somewhat limited		Somewhat limited	
	Seepage	0.43	Thin layer	0.86
	Depth to bedrock	0.37	Piping	0.08
	Slope	0.01	Seepage	0.05
Mecklenburg	Somewhat limited		Somewhat limited	
	Seepage	0.70	Seepage	0.05
	Slope	0.01		
Wilkes	Somewhat limited		Very limited	
	Depth to bedrock	0.53	Thin layer	1.00
	Seepage	0.43	Seepage	0.03
	Slope	0.01		

Table 14.—Engineering Properties

(Absence of an entry indicates that the data were not estimated.)

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
AaA:												
Altavista-------	0-5	Sandy loam, loamy sand	SC-SM	A-2-4	0	0	100	97-100	50-75	15-40	20-36	4-13
	5-12	Sandy loam	SC-SM	A-2-4	0	0	100	100	60-70	30-40	18-31	4-13
	12-47	Sandy clay loam, clay loam, sandy clay	CL	A-6	0	0	100	98-100	78-100	36-80	27-44	12-25
	47-57	Sandy clay loam, sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	100	61-90	30-55	18-43	4-24
	57-74	Loam, loamy fine sand, sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0	100	100	50-95	15-40	16-36	2-17
	74-80	Sandy clay loam	SC-SM	A-4, A-2-4, A-2	0	0	100	100	60-90	30-55	18-43	4-24
AaB:												
Altavista-------	0-5	Sandy loam, loamy sand	SC-SM	A-2-4	0	0	100	97-100	50-75	15-40	20-36	4-13
	5-12	Sandy loam	SC-SM	A-2-4	0	0	100	100	60-70	30-40	18-31	4-13
	12-47	Sandy clay loam, clay loam, sandy clay	CL	A-6	0	0	100	98-100	78-100	36-80	27-44	12-25
	47-57	Sandy clay loam, sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	100	61-90	30-55	18-43	4-24
	57-74	Loam, loamy fine sand, sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0	100	100	50-95	15-40	16-36	2-17
	74-80	Sandy clay loam	SC-SM	A-4, A-2-4, A-2	0	0	100	100	60-90	30-55	18-43	4-24
AaC:												
Altavista-------	0-5	Sandy loam, loamy sand	SC-SM	A-2-4	0	0	100	97-100	50-75	15-40	20-36	4-13
	5-12	Sandy loam	SC-SM	A-2-4	0	0	100	100	60-70	30-40	18-31	4-13
	12-47	Sandy clay loam, clay loam, sandy clay	CL	A-6	0	0	100	98-100	78-100	36-80	27-44	12-25
	47-57	Sandy clay loam, sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	100	61-90	30-55	18-43	4-24
	57-74	Loam, loamy fine sand, sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0	100	100	50-95	15-40	16-36	2-17
	74-80	Sandy clay loam	SC-SM	A-4, A-2-4, A-2	0	0	100	100	60-90	30-55	18-43	4-24

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				Pct	Pct					Pct	
AgB:												
Appling---------	0-6	Sandy loam, loamy sand	SC-SM, SM	A-2	0	0-5	84-100	83-100	59-86	27-47	17-35	2-13
	6-10	Sandy clay loam, sandy loam, loam	CL, SC	A-4, A-6	0	0-5	89-100	89-100	69-92	38-58	24-40	9-21
	10-41	Sandy clay, clay loam, clay, sandy clay loam	SC	A-7	0	0-5	86-100	85-100	56-96	31-95	29-57	13-36
	41-51	Sandy clay loam, clay loam, loam	CL, SC	A-6	0	0	83-100	82-100	60-99	32-65	29-53	13-32
	51-60	Sandy loam, sandy clay loam, loamy sand	SC	A-2, A-4	0	0	91-100	91-100	68-82	34-46	22-32	7-13
Hard Labor------	0-9	Sandy loam, loamy sand	SC-SM, SM	A-2-4	0	0-3	92-100	91-100	61-82	25-42	17-35	2-13
	9-15	Sandy clay loam	SC	A-2-4	0	0	83-100	82-100	65-92	35-55	24-39	9-19
	15-50	Clay loam, sandy clay, sandy clay loam	CL	A-6	0	0	89-100	89-100	77-100	61-84	37-53	21-32
	50-60	Sandy clay loam	CL, SC	A-7, A-6	0	0	89-100	89-100	70-93	36-55	29-44	13-25
AgC:												
Appling---------	0-6	Sandy loam, loamy sand	SC-SM, SM	A-2	0	0-5	84-100	83-100	59-86	27-47	17-35	2-13
	6-10	Sandy clay loam, sandy loam, loam	CL, SC	A-4, A-6	0	0-5	89-100	89-100	69-92	38-58	24-40	9-21
	10-41	Sandy clay, clay loam, clay, sandy clay loam	SC	A-7	0	0-5	86-100	85-100	56-96	31-95	29-57	13-36
	41-51	Sandy clay loam, clay loam, loam	CL, SC	A-6	0	0	83-100	82-100	60-99	32-65	29-53	13-32
	51-60	Sandy loam, sandy clay loam, loamy sand	SC	A-2, A-4	0	0	91-100	91-100	68-82	34-46	22-32	7-13
Hard Labor------	0-9	Sandy loam, loamy sand	SC-SM, SM	A-2-4	0	0-3	91-100	91-100	61-82	25-42	17-35	2-13
	9-15	Sandy clay loam	SC	A-2-4	0	0	83-100	82-100	65-92	35-55	24-39	9-19
	15-50	Clay loam, sandy clay, sandy clay loam	CL	A-6	0	0	89-100	89-100	77-100	61-84	37-53	21-32
	50-60	Sandy clay loam	CL, SC	A-6	0	0	89-100	89-100	70-93	36-55	29-44	13-25
ArE:												
Ashlar----------	0-6	Loamy sand, stony sandy loam	SC-SM, SM	A-2-4	0	0-21	63-100	62-100	48-92	13-37	17-33	2-13
	6-21	Sandy loam, loamy sand	SC-SM, SM	A-2-4	0	0-23	64-100	63-100	45-88	22-50	16-32	2-13
	21-24	Bedrock			---	---	---	---	---	---	---	---
	>24	Bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number-- 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Rion------------	0-7	Sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0-7	87-100	86-100	58-82	26-46	17-35	2-13
	7-20	Sandy clay loam, clay loam, sandy clay	CL, SC, SC-SM	A-7, A-6	0	0-8	88-100	87-100	70-95	38-59	27-44	12-25
	20-36	Sandy clay loam, sandy loam	SC-SM, SC	A-4	0	0-3	83-100	82-100	67-92	35-53	24-38	9-19
	36-60	Sandy loam, loamy sand	SC-SM, SM	A-2-4, A-4	0	0-8	87-100	87-100	59-86	25-47	0-32	NP-13
BaA:												
Buncombe--------	0-10	Loamy sand, sandy loam, sand	SC-SM, SM	A-2-4	0	0	98-100	98-100	50-75	9-30	0-26	NP-7
	10-60	Sand, loamy sand, sandy loam	SM, SC-SM	A-2-4	0	0	98-100	98-100	50-75	5-30	0-24	NP-7
CaA:												
Cartecay--------	0-4	Sandy loam	SC-SM, SM	A-4	0	0	89-100	89-100	64-81	30-55	25-36	6-13
	4-37	Sandy loam, loamy sand	SC-SM	A-2, A-4	0	0-3	89-100	89-100	65-83	30-55	18-30	4-12
	37-66	Sandy loam, loamy sand, sand	SM	A-4	0	0-3	41-100	40-100	40-84	30-55	0-28	NP-10
Toccoa----------	0-6	Sandy loam, loamy sand	SC-SM	A-2, A-4	0	0	92-100	92-100	66-82	33-46	21-33	4-12
	6-80	Sandy loam, loamy sand	SC-SM, SM	A-2, A-4	0	0	92-100	92-100	63-84	30-48	15-31	1-13
CeB2:												
Cecil-----------	0-3	Sandy loam, fine sandy loam, loam	SC-SM, SM	A-2, A-4	0	0	84-100	80-100	67-90	26-42	15-30	NP-3
	3-9	Sandy clay loam	SC	A-4	0	0	88-100	85-100	65-90	29-55	20-35	6-16
	9-26	Clay, clay loam	MH	A-7	0	0	97-100	92-100	72-100	55-95	38-80	8-32
	26-31	Clay, clay loam	MH	A-7	0	0	97-100	92-100	72-100	55-95	38-80	8-32
	31-50	Clay loam, sandy clay loam	CL, ML, SC, SM	A-4, A-6	0	0	75-100	75-100	68-95	38-81	25-50	6-24
	50-60	Sandy clay loam, clay loam, sandy loam	SC-SM	A-2, A-4, A-6	0	0	85-100	80-100	65-90	22-55	24-40	9-21
CeC2:												
Cecil-----------	0-3	Sandy loam, fine sandy loam, loam	SC-SM, SM	A-2, A-4	0	0	84-100	80-100	67-90	26-42	15-30	NP-3
	3-9	Sandy clay loam	SC	A-4	0	0	88-100	85-100	65-90	29-55	20-35	6-16
	9-26	Clay, clay loam	MH	A-7	0	0	97-100	92-100	72-100	55-95	38-80	8-32
	26-31	Clay, clay loam	MH	A-7	0	0	97-100	92-100	72-100	55-95	38-80	8-32
	31-50	Clay loam, sandy clay loam	CL, ML, SC, SM	A-4, A-6	0	0	75-100	75-100	68-95	38-81	25-50	6-24
	50-60	Sandy clay loam, clay loam, sandy loam	SC-SM	A-2, A-4, A-6	0	0	85-100	80-100	65-90	22-55	24-40	9-21

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
CpA:												
Congaree--------	0-8	Sandy loam, loam	SC-SM, ML	A-4	0	0	97-100	97-100	68-85	34-51	22-41	6-17
	8-74	Loam, sandy clay loam, sandy loam	CL	A-4, A-6	0	0	91-100	91-100	73-100	52-83	20-44	6-25
CrA:												
Congaree--------	0-8	Sandy loam, loam	SC-SM, ML	A-4	0	0	97-100	97-100	68-85	34-51	22-37	6-13
	8-74	Loam, sandy clay loam, sandy loam	CL	A-4, A-6	0	0	91-100	91-100	73-100	52-83	20-36	6-17
Cartecay--------	0-4	Sandy loam	SC-SM, SM	A-4	0	0	89-100	89-100	64-81	30-55	25-36	6-13
	4-37	Sandy loam, loamy sand	SC-SM	A-2, A-4	0	0-3	89-100	89-100	65-83	30-55	18-30	4-12
	37-66	Sandy loam, loamy sand, sand	SM	A-4	0	0-3	41-100	40-100	40-84	30-55	0-28	NP-10
EnC:												
Enon------------	0-4	Very gravelly sandy loam, very stony loamy sand	SC-SM, SC	A-2-4, A-4	0-27	0-20	50-100	50-100	25-75	8-40	17-31	2-10
	4-6	Gravelly sandy clay loam, sandy loam	SC	A-2-4	0	0-25	60-100	50-100	28-90	14-55	21-50	6-28
	6-16	Clay, clay loam, sandy clay	CH	A-7-6	0	0-7	93-100	93-100	82-100	68-92	45-69	25-44
	16-27	Sandy clay loam, clay loam, sandy loam	CL, SC-SM	A-6	0	0-9	99-100	95-100	59-100	58-80	24-40	9-21
	27-75	Sandy loam, sandy clay loam, loamy sand	SC-SM	A-4	0	0	97-100	74-100	49-86	19-46	16-35	2-17
Wynott----------	0-7	Very gravelly sandy loam, loamy sand, sandy clay loam	SC	A-2, A-2-4	0-29	0-36	32-100	25-100	25-90	8-40	17-35	2-13
	7-20	Clay, clay loam	CH	A-7-6	0	0-5	93-100	74-100	74-100	62-98	45-74	25-48
	20-30	Sandy loam, sandy clay loam	SC	A-2-6	0	0	97-100	82-100	41-90	26-45	16-49	2-28
	30-42	Bedrock			---	---	---	---	---	---	---	---
	>42	Bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
GaC:												
Grover----------	0-4	Sandy loam	SC-SM	A-2-4, A-4	0	0-5	78-100	69-100	41-95	21-75	24-38	8-16
	4-11	Sandy loam	SC, SC-SM	A-4	0	0-8	78-100	69-100	41-95	21-75	23-35	8-16
	11-14	Sandy loam, sandy clay loam	CL, SC-SM	A-4	0	0-3	84-100	77-100	46-90	23-55	24-40	9-21
	14-25	Sandy clay loam, clay loam, sandy loam	SC	A-7, A-6	0	0	88-100	82-100	49-94	25-80	27-44	12-25
	25-31	Sandy loam, sandy clay loam	SC-SM	A-4	0	0	96-100	92-100	55-90	28-55	24-36	9-17
	31-80	Sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0	100	100	50-75	15-40	18-27	4-10
Mountain Park---	0-4	Sandy loam	SC-SM	A-2-4, A-4	0	0-5	73-100	63-100	38-70	19-40	20-34	4-13
	4-10	Sandy loam	SC-SM	A-4, A-2-4	0	0-8	77-100	68-100	41-70	20-40	18-31	4-13
	10-23	Sandy clay loam, clay loam	SC	A-7, A-6	0	0	88-100	83-100	66-95	29-80	29-45	13-25
	23-32	Sandy loam, sandy clay loam	SC-SM	A-4	0	0	90-100	84-100	50-90	25-55	24-36	9-17
	32-46	Bedrock			---	---	---	---	---	---	---	---
	46-55	Sandy loam	SC-SM	A-2-4, A-4	0	0	100	100	60-70	30-40	18-28	4-10
	55-65	Bedrock			---	---	---	---	---	---	---	---
GaE:												
Grover----------	0-4	Sandy loam	SC-SM	A-2-4, A-4	0	0-6	78-100	69-100	41-95	21-75	24-38	8-16
	4-11	Sandy loam	SC, SC-SM	A-4	0	0-4	78-100	69-100	41-95	21-75	23-35	8-16
	11-14	Sandy loam, sandy clay loam	CL, SC-SM	A-4	0	0-3	84-100	77-100	46-90	23-55	24-40	9-21
	14-25	Sandy clay loam, clay loam, sandy loam	SC	A-7, A-6	0	0	88-100	82-100	49-94	25-80	27-44	12-25
	25-31	Sandy loam, sandy clay loam	SC-SM	A-4	0	0	96-100	92-100	55-90	28-55	24-36	9-17
	31-80	Sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0	100	100	50-75	15-40	18-27	4-10
Mountain Park---	0-4	Sandy loam	SC-SM	A-2-4, A-4	0	0-6	73-100	63-100	38-70	19-40	20-34	4-13
	4-10	Sandy loam	SC-SM	A-4, A-2-4	0	0-4	77-100	68-100	41-70	20-40	18-31	4-13
	10-23	Sandy clay loam, clay loam	SC	A-7, A-6	0	0	88-100	83-100	66-95	29-80	29-45	13-25
	23-32	Sandy loam, sandy clay loam	SC-SM	A-4	0	0	90-100	84-100	50-90	25-55	24-36	9-17
	32-46	Bedrock			---	---	---	---	---	---	---	---
	46-55	Sandy loam	SC-SM	A-2-4, A-4	0	0	100	100	60-70	30-40	18-28	4-10
	55-65	Bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
GaF:												
Grover----------	0-4	Sandy loam	SC-SM	A-2-4, A-4	0	0-6	78-100	69-100	41-95	21-75	24-38	8-16
	4-11	Sandy loam	SC, SC-SM	A-4	0	0-4	78-100	69-100	41-95	21-75	23-35	8-16
	11-14	Sandy loam, sandy clay loam	CL, SC-SM	A-4	0	0-3	84-100	77-100	46-90	23-55	24-40	9-21
	14-25	Sandy clay loam, clay loam, sandy loam	SC	A-7, A-6	0	0	88-100	82-100	49-94	25-80	27-44	12-25
	25-31	Sandy loam, sandy clay loam	SC-SM	A-4	0	0	96-100	92-100	55-90	28-55	24-36	9-17
	31-80	Sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0	100	100	50-75	15-40	18-27	4-10
Mountain Park---	0-4	Sandy loam	SC-SM	A-2-4, A-4	0	0-6	73-100	63-100	38-70	19-40	20-34	4-13
	4-10	Sandy loam	SC-SM	A-4, A-2-4	0	0-4	77-100	68-100	41-70	20-40	18-31	4-13
	10-23	Sandy clay loam, clay loam	SC	A-7, A-6	0	0	88-100	83-100	66-95	29-80	29-45	13-25
	23-32	Sandy loam, sandy clay loam	SC-SM	A-4	0	0	90-100	84-100	50-90	25-55	24-36	9-17
	32-46	Bedrock			---	---	---	---	---	---	---	---
	46-55	Sandy loam	SC-SM	A-2-4, A-4	0	0	100	100	60-70	30-40	18-28	4-10
	55-65	Bedrock			---	---	---	---	---	---	---	---
HbB:												
Hiwassee--------	0-6	Sandy loam	SM	A-2-4, A-4	0	0	100	100	60-70	30-40	17-31	2-10
	6-35	Clay loam, sandy clay	CL	A-7	0	0	98-100	96-100	82-95	43-80	37-48	21-28
	35-80	Sandy clay loam, loam	SC-SM, CL	A-6	0	0	84-100	78-100	62-95	27-75	29-45	13-25
HbC:												
Hiwassee--------	0-6	Sandy loam	SM	A-2-4, A-4	0	0	100	100	60-70	30-40	17-31	2-10
	6-35	Clay loam, sandy clay	CL	A-7	0	0	98-100	96-100	82-95	43-80	37-48	21-28
	35-80	Sandy clay loam, loam	SC-SM, CL	A-6	0	0	84-100	78-100	62-95	27-75	29-45	13-25
LaD2:												
Lloyd-----------	0-4	Sandy loam, loamy sand	SM	A-4, A-2-4	0	0	81-100	81-100	43-75	13-40	19-35	3-13
	4-25	Clay loam, clay, silty clay	CL	A-6	0	0	86-100	81-100	73-100	39-80	37-53	21-32
	25-40	Sandy clay loam, sandy loam	SC	A-4	0	0	92-100	86-100	52-90	26-55	22-40	7-21
	40-80	Sandy loam, loamy sand	SC-SM, SM	A-4, A-2-4	0	0	97-100	92-100	46-75	5-40	16-27	2-10

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Gwinnett--------	0-5	Sandy loam	SC, SC-SM, SM	A-2, A-4, A-6	0	0	81-100	81-100	58-80	26-41	22-36	6-13
	5-22	Clay, sandy clay, clay loam	CH, CL	A-7	0	0	73-100	72-100	57-100	49-92	42-66	24-36
	22-38	Clay loam, sandy clay	CL	A-7	0	0	98-100	96-100	82-95	43-80	37-48	21-28
	38-41	Sandy clay loam, clay loam, loam	SC	A-6	0	0	76-100	75-100	56-82	30-46	32-49	16-28
	41-60	Bedrock			---	---	---	---	---	---	---	---
MdB2:												
Madison---------	0-5	Sandy loam	SM	A-2, A-2-4	0	0	90-100	84-100	50-70	25-40	17-35	2-13
	5-24	Clay loam, clay, sandy clay	CL	A-7-6	0	0	98-100	91-100	77-100	41-95	37-57	21-36
	24-38	Sandy clay loam, clay loam, loam	SC-SM	A-6	0	0	98-100	92-100	74-90	32-55	33-44	17-25
	38-50	Sandy clay loam, clay loam, loam	SC	A-6	0	0	98-100	92-100	74-90	28-55	33-44	17-25
	50-60	Sandy loam, loam, fine sandy loam	SM	A-2, A-2-4	0	0	98-100	92-100	55-70	28-40	16-32	2-13
Bethlehem-------	0-5	Sandy loam	SM	A-2-4, A-4	0	0	100	97-100	58-70	29-40	22-36	6-13
	5-27	Clay loam, clay	CL	A-6	0	0	98-100	97-100	87-96	68-80	37-49	21-28
	27-30	Sandy clay loam	SC-SM	A-6	0	0	100	100	80-90	35-55	29-44	13-25
	30-56	Bedrock			---	---	---	---	---	---	---	---
MdC2:												
Madison---------	0-5	Sandy loam	SM	A-2, A-2-4	0	0	92-100	92-100	63-84	28-46	17-35	2-13
	5-24	Clay loam, clay, sandy clay	CL	A-7-6	0	0	91-100	91-100	77-100	59-85	37-57	21-36
	24-38	Sandy clay loam, clay loam, loam	SC-SM	A-6	0	0	93-100	93-100	75-91	42-55	33-44	17-25
	38-50	Sandy clay loam, clay loam, loam	SC-SM	A-6	0	0	100	100	81-91	45-55	33-44	17-25
	50-60	Sandy loam, loam, fine sandy loam	SM	A-2, A-2-4	0	0	100	100	69-84	31-46	16-32	2-13
Bethlehem-------	0-5	Sandy loam	SM	A-2-4, A-4	0	0	100	97-100	58-70	29-40	22-36	6-13
	5-27	Clay loam, clay	CL	A-6	0	0	98-100	97-100	87-96	68-80	37-49	21-28
	27-30	Sandy clay loam	SC-SM	A-6	0	0	100	100	80-90	35-55	29-44	13-25
	30-56	Bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
PaB2:												
Pacolet---------	0-5	Sandy loam	SC-SM	A-2-4, A-4	0	0	76-100	75-100	52-81	23-43	20-33	4-13
	5-10	Sandy clay loam	SC	A-4	0-1	0	88-100	85-100	65-90	29-55	20-35	6-16
	10-26	Clay, sandy clay, clay loam	CL	A-7	0	0	85-100	80-100	70-100	60-95	42-57	24-36
	26-36	Sandy clay loam, clay loam, sandy loam	SC-SM	A-2, A-4, A-6	0	0	85-100	80-100	65-90	22-55	24-40	9-21
	36-66	Sandy loam, fine sandy loam, loam	SC-SM	A-2-4, A-4	0	0	100	100	69-84	30-40	20-36	6-17
PaD2:												
Pacolet---------	0-5	Sandy loam	SC-SM	A-2-4, A-4	0	0	76-100	75-100	52-81	23-43	20-33	4-13
	5-10	Sandy clay loam	SC	A-4	0-1	0-2	88-100	85-100	65-90	29-55	20-35	6-16
	10-26	Clay, sandy clay, clay loam	CL	A-7	0	0-5	85-100	80-100	70-100	60-95	42-57	24-36
	26-36	Sandy clay loam, clay loam, sandy loam	SC-SM	A-2, A-4, A-6	0	0-5	85-100	80-100	65-90	22-55	24-40	9-21
	36-66	Sandy loam, fine sandy loam, loam	SC-SM	A-2-4, A-4	0	0	100	100	69-84	30-40	20-36	6-17
PaE2:												
Pacolet---------	0-5	Sandy loam	SC-SM	A-2-4, A-4	0	0	76-100	75-100	52-81	23-43	20-33	4-13
	5-10	Sandy clay loam	SC	A-4	0-1	0-2	88-100	85-100	65-90	29-55	20-35	6-16
	10-26	Clay, sandy clay, clay loam	CL	A-7	0	0-5	85-100	80-100	70-100	60-95	42-57	24-36
	26-36	Sandy clay loam, clay loam, sandy loam	SC-SM	A-2, A-4, A-6	0	0-5	85-100	80-100	65-90	22-55	24-40	9-21
	36-66	Sandy loam, fine sandy loam, loam	SC-SM	A-2-4, A-4	0	0	100	100	69-84	30-40	20-36	6-17
PgC2:												
Pacolet---------	0-5	Sandy loam	SC-SM	A-1-b, A-2-4, A-4	0	0-12	59-100	57-100	40-81	18-43	20-33	4-13
	5-10	Sandy clay loam	SC	A-4	0	0-15	58-100	56-100	47-88	24-47	20-35	6-16
	10-26	Clay, sandy clay, clay loam	CL	A-7	0	0-2	78-100	77-100	67-100	52-83	42-57	24-36
	26-36	Sandy clay loam, clay loam, sandy loam	SC-SM	A-2, A-4, A-6	0	0-2	77-100	76-100	60-94	31-56	24-40	9-21
	36-66	Sandy loam, fine sandy loam, loam	SC-SM	A-2-4, A-4	0	0	100	100	69-84	31-46	20-36	6-17

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Saw-------------	0-5	Sandy loam	SC-SM, SM	A-4, A-2-4	0	0-12	60-100	58-100	40-84	18-46	17-35	2-13
	5-17	Sandy clay, clay	CL	A-7-6	0	0-3	79-100	78-100	61-93	39-65	42-57	24-36
	17-22	Sandy clay loam, sandy loam	SC-SM, SM	A-6, A-2-4, A-4	0	0-3	80-100	79-100	56-100	25-61	16-44	2-25
	>22	Bedrock			---	---	---	---	---	---	---	---
ReD:												
Rion------------	0-7	Sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0-8	99-100	94-100	47-75	14-40	17-35	2-13
	7-20	Sandy clay loam, clay loam, sandy clay	CL, SC, SC-SM	A-6	0	0-5	100	97-100	58-95	38-59	27-44	12-25
	20-36	Sandy clay loam, sandy loam	SC-SM, SC	A-4	0	0-1	100	100	60-90	30-55	24-38	9-19
	36-60	Sandy loam, loamy sand	SC-SM, SM	A-2-4, A-4	0	0-31	100	100	50-75	14-40	0-32	NP-13
ReE:												
Rion------------	0-7	Sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0-8	99-100	94-100	47-75	14-40	17-35	2-13
	7-20	Sandy clay loam, clay loam, sandy clay	CL, SC, SC-SM	A-7, A-6	0	0-5	100	97-100	58-95	38-59	27-44	12-25
	20-36	Sandy clay loam, sandy loam	SC-SM, SC	A-4	0	0-1	100	100	60-90	30-55	24-38	9-19
	36-60	Sandy loam, loamy sand	SC-SM, SM	A-2-4, A-4	0	0-31	100	100	50-75	14-40	0-32	NP-13
RoE:												
Rion------------	0-7	Sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0-3	84-100	83-100	56-82	25-46	17-35	2-13
	7-20	Sandy clay loam, clay loam, sandy clay	CL, SC, SC-SM	A-6	0	0-7	86-100	86-100	67-95	36-59	27-44	12-25
	20-36	Sandy clay loam, sandy loam	SC-SM, SC	A-4	0	0-3	83-100	82-100	65-92	33-53	24-38	9-19
	36-60	Sandy loam, loamy sand	SC-SM, SM	A-2-4, A-4	0	0-8	87-100	87-100	56-82	24-46	0-32	NP-13
Louisburg-------	0-3	Sandy loam, loamy sand	SC-SM, SM	A-2-4, A-4	0	0-15	59-100	56-100	38-80	17-44	17-33	2-12
	3-14	Sandy loam, bouldery loamy sand, sand	SC-SM, SM	A-2-4	0	0-14	57-100	55-100	37-81	15-40	16-30	2-12
	14-26	Sandy loam	SC-SM	A-2-4, A-4	0	0-13	58-100	56-100	38-78	21-46	20-31	6-13
	26-38	Sandy loam, loamy sand, coarse sandy loam	SC-SM	A-2-4	0	0-20	60-100	59-100	39-77	14-36	18-31	4-13
	38-71	Loamy sand, sand	SM	A-2-4	0	0-10	54-100	54-100	41-82	11-27	0-23	NP-6
	71-80	Bedrock	SC-SM, SM	A-2-4	---	---	---	---	---	---	---	---

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
RoF:												
Rion	0-7	Sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0-3	84-100	83-100	56-82	25-46	17-35	2-13
	7-20	Sandy clay loam, clay loam, sandy clay	CL, SC, SC-SM	A-6	0	0-7	86-100	86-100	67-95	36-59	27-44	12-25
	20-36	Sandy clay loam, sandy loam	SC-SM, SC	A-4	0	0-3	83-100	82-100	65-92	33-53	24-38	9-19
	36-60	Sandy loam, loamy sand	SC-SM, SM	A-2-4, A-4	0	0-8	87-100	87-100	56-82	24-46	0-32	NP-13
Louisburg	0-3	Sandy loam, loamy sand	SC-SM, SM	A-2-4, A-4	0	0-8	56-100	52-100	35-80	16-44	17-33	2-12
	3-14	Sandy loam, bouldery loamy sand, sand	SC-SM, SM	A-2-4	0	0-14	57-100	55-100	37-81	15-40	16-30	2-12
	14-26	Sandy loam	SC-SM	A-2-4, A-4	0	0-13	58-100	56-100	38-78	21-46	20-31	6-13
	26-38	Sandy loam, loamy sand, coarse sandy loam	SC-SM	A-2-4	0	0-20	60-100	59-100	39-77	14-36	18-31	4-13
	38-71	Loamy sand, sand	SM	A-2-4	0	0-10	54-100	54-100	41-82	11-27	0-23	NP-6
	71-80	Bedrock	SC-SM, SM	A-2-4	---	---	---	---	---	---	---	---
UcC:												
Urban land	---	---	---	---	---	---	---	---	---	---	---	---
Altavista	0-5	Sandy loam, loamy sand	SC-SM	A-2-4	0	0	100	97-100	50-75	15-40	20-36	4-13
	5-12	Sandy loam	SC-SM	A-2-4	0	0	100	100	60-70	30-40	18-31	4-13
	12-47	Sandy clay loam, clay loam, sandy clay	CL	A-6	0	0	100	98-100	78-100	36-80	27-44	12-25
	47-57	Sandy clay loam, sandy loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0	100	100	61-90	30-55	18-43	4-24
	57-74	Loam, loamy fine sand, sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0	100	100	50-95	15-40	16-36	2-17
	74-80	Sandy clay loam	SC-SM	A-4, A-2-4, A-2	0	0	100	100	60-90	30-55	18-43	4-24
UdC:												
Urban land	---	---	---	---	---	---	---	---	---	---	---	---
Appling	0-6	Sandy loam, loamy sand	SC-SM, SM	A-2	0	0-5	84-100	83-100	59-86	27-47	17-35	2-13
	6-10	Sandy clay loam, sandy loam, loam	CL, SC	A-4, A-6	0	0-5	89-100	89-100	69-92	38-58	24-40	9-21
	10-41	Sandy clay, clay loam, clay, sandy clay loam	SC	A-7	0	0-5	86-100	85-100	56-96	31-95	29-57	13-36
	41-51	Sandy clay loam, clay loam, loam	CL, SC	A-6	0	0	83-100	82-100	60-99	32-65	29-53	13-32
	51-60	Sandy loam, sandy clay loam, loamy sand	SC	A-2, A-4	0	0	91-100	91-100	68-82	34-46	22-32	7-13

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
Hard Labor------	0-9	Sandy loam, loamy sand	SC-SM, SM	A-2-4	0	0-3	91-100	91-100	61-82	25-42	17-35	2-13
	9-15	Sandy clay loam	SC	A-2-4	0	0	83-100	82-100	65-92	35-55	24-39	9-19
	15-50	Clay loam, sandy clay, sandy clay loam	CL	A-6	0	0	89-100	89-100	77-100	61-84	37-53	21-32
	50-60	Sandy clay loam	CL, SC	A-6	0	0	89-100	89-100	70-93	36-55	29-44	13-25
UeE:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Ashlar----------	0-6	Loamy sand, stony sandy loam	SC-SM, SM	A-2-4	0	0-21	63-100	62-100	48-92	13-37	17-33	2-13
	6-21	Sandy loam, loamy sand	SC-SM, SM	A-2-4	0	0-23	64-100	63-100	45-88	22-50	16-32	2-13
	21-24	Bedrock			---	---	---	---	---	---	---	---
	>24	Bedrock			---	---	---	---	---	---	---	---
Rion------------	0-7	Sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0-7	87-100	86-100	58-82	26-46	17-35	2-13
	7-20	Sandy clay loam, clay loam, sandy clay	CL, SC, SC-SM	A-7, A-6	0	0-8	88-100	87-100	70-95	38-59	27-44	12-25
	20-36	Sandy clay loam, sandy loam	SC-SM, SC	A-4	0	0-3	83-100	82-100	67-92	35-53	24-38	9-19
	36-60	Sandy loam, loamy sand	SC-SM, SM	A-2-4, A-4	0	0-8	87-100	87-100	59-86	25-47	0-32	NP-13
UfC2:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Cecil-----------	0-3	Sandy loam, fine sandy loam, loam	SC-SM, SM	A-2, A-4	0	0	84-100	80-100	67-90	26-42	0-30	NP-3
	3-9	Sandy clay loam	SC	A-4	0	0	88-100	85-100	65-90	29-55	20-35	6-16
	9-26	Clay, clay loam	MH	A-7	0	0	97-100	92-100	72-100	55-95	38-65	8-18
	26-31	Clay, clay loam	MH	A-7	0	0	97-100	92-100	72-100	55-95	38-65	8-18
	31-50	Clay loam, sandy clay loam	CL, ML, SC, SM	A-4, A-6	0	0	75-100	75-100	68-95	38-81	21-40	3-17
	50-60	Sandy clay loam, clay loam, sandy loam	SC-SM	A-2, A-4, A-6	0	0	85-100	80-100	65-90	22-55	24-40	9-21

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
UgC:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Grover----------	0-4	Sandy loam	SC-SM	A-2-4, A-4	0	0	78-100	69-100	41-95	21-75	24-38	8-16
	4-11	Sandy loam	SC, SC-SM	A-4	0	0	78-100	69-100	41-95	21-75	23-35	8-16
	11-14	Sandy loam, sandy clay loam	CL, SC-SM	A-4	0	0	84-100	77-100	46-90	23-55	24-40	9-21
	14-25	Sandy clay loam, clay loam, sandy loam	SC	A-7, A-6	0	0	88-100	82-100	49-94	25-80	27-44	12-25
	25-31	Sandy loam, sandy clay loam	SC-SM	A-4	0	0	96-100	92-100	55-90	28-55	24-36	9-17
	31-80	Sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0	100	100	50-75	15-40	18-27	4-10
Mountain Park---	0-4	Sandy loam	SC-SM	A-2-4, A-4	0	0	73-100	63-100	38-70	19-40	20-34	4-13
	4-10	Sandy loam	SC-SM	A-4, A-2-4	0	0	77-100	68-100	41-70	20-40	18-31	4-13
	10-23	Sandy clay loam, clay loam	SC	A-7, A-6	0	0	88-100	83-100	66-95	29-80	29-45	13-25
	23-32	Sandy loam, sandy clay loam	SC-SM	A-4	0	0	90-100	84-100	50-90	25-55	24-36	9-17
	32-46	Bedrock			---	---	---	---	---	---	---	---
	46-55	Sandy loam	SC-SM	A-2-4, A-4	0	0	100	100	60-70	30-40	18-28	4-10
	55-65	Bedrock			---	---	---	---	---	---	---	---
UgE:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Grover----------	0-4	Sandy loam	SC-SM	A-2-4, A-4	0	0	78-100	69-100	41-95	21-75	24-38	8-16
	4-11	Sandy loam	SC, SC-SM	A-4	0	0	78-100	69-100	41-95	21-75	23-35	8-16
	11-14	Sandy loam, sandy clay loam	CL, SC-SM	A-4	0	0	84-100	77-100	46-90	23-55	24-40	9-21
	14-25	Sandy loam, sandy clay loam, clay loam	SC	A-7, A-6	0	0	88-100	82-100	49-94	25-80	27-44	12-25
	25-31	Sandy loam, sandy clay loam	SC-SM	A-4	0	0	96-100	92-100	55-90	28-55	24-36	9-17
	31-80	Loamy sand, sandy loam	SC-SM	A-2-4, A-4	0	0	100	100	50-75	15-40	18-27	4-10

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Mountain Park---	0-4	Sandy loam	SC-SM	A-2-4, A-4	0	0	73-100	63-100	38-70	19-40	20-34	4-13
	4-10	Sandy loam	SC-SM	A-4, A-2-4	0	0	77-100	68-100	41-70	20-40	18-31	4-13
	10-23	Sandy clay loam, clay loam	SC	A-6, A-7	0	0	88-100	83-100	66-95	29-80	29-45	13-25
	23-32	Sandy loam, sandy clay loam	SC-SM	A-4	0	0	90-100	84-100	50-90	25-55	24-36	9-17
	32-46	Bedrock			---	---	---	---	---	---	---	---
	46-55	Sandy loam	SC-SM	A-2-4, A-4	0	0	100	100	60-70	30-40	18-28	4-10
	55-65	Bedrock			---	---	---	---	---	---	---	---
UmC2:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Madison---------	0-5	Sandy loam	SM	A-2, A-2-4	0	0	92-100	92-100	63-84	28-46	17-35	2-13
	5-24	Clay loam, clay, sandy clay	CL	A-7-6	0	0	91-100	91-100	77-100	59-85	37-57	21-36
	24-38	Sandy clay loam, clay loam, loam	SC-SM	A-6	0	0	93-100	93-100	75-91	42-55	33-44	17-25
	38-50	Sandy clay loam, clay loam, loam	SC-SM	A-6	0	0	100	100	81-91	45-55	33-44	17-25
	50-60	Sandy loam, loam, fine sandy loam	SM	A-2, A-2-4	0	0	100	100	69-84	31-46	16-32	2-13
Bethlehem-------	0-5	Sandy loam	SM	A-2-4, A-4	0	0	100	97-100	58-70	29-40	22-36	6-13
	5-27	Clay loam, clay	CL	A-7	0	0	98-100	97-100	87-96	68-80	37-49	21-28
	27-30	Sandy clay loam	SC-SM	A-6	0	0	100	100	80-90	35-55	29-44	13-25
	30-56	Bedrock	SC-SM	A-2-4	---	---	---	---	---	---	---	---
UpC2:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Pacolet---------	0-5	Sandy loam	SC-SM	A-2-4, A-4	0	0	76-100	75-100	52-81	23-43	20-33	4-13
	5-10	Sandy clay loam	SC	A-4	0-1	0-2	88-100	85-100	65-90	29-55	20-35	6-16
	10-26	Clay, sandy clay, clay loam	CL	A-7	0	0-5	85-100	80-100	70-100	60-95	42-57	24-36
	26-36	Sandy clay loam, clay loam, sandy loam	SC-SM	A-2, A-4, A-6	0	0-5	85-100	80-100	65-90	22-55	24-40	9-21
	36-66	Sandy loam, fine sandy loam, loam	SC-SM	A-2-4, A-4	0	0	100	100	69-84	30-40	20-36	6-17
Saw-------------	0-5	Sandy loam	SC-SM, SM	A-4, A-2-4	0	0-12	60-100	58-100	40-84	18-46	17-35	2-13
	5-17	Sandy clay, clay	CL	A-7-6	0	0-3	79-100	78-100	61-93	39-65	42-57	24-36
	17-22	Sandy clay loam, sandy loam	SC-SM, SM	A-6, A-2-4, A-4	0	0-3	80-100	79-100	56-100	25-61	16-44	2-25
	>22	Bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plas- ticity index
	In				Pct	Pct					Pct	
UrE:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Rion------------	0-7	Sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0-8	99-100	94-100	47-75	14-40	17-35	2-13
	7-20	Sandy clay loam, clay loam, sandy clay	CL, SC, SC-SM	A-7, A-6	0	0-5	100	97-100	58-95	38-59	27-44	12-25
	20-36	Sandy clay loam, sandy loam	SC-SM, SC	A-4	0	0-1	100	100	60-90	30-55	24-38	9-19
	36-60	Sandy loam, loamy sand	SC-SM, SM	A-2-4, A-4	0	0-31	100	100	50-75	14-40	0-32	NP-13
UsE:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Rion------------	0-7	Sandy loam, loamy sand	SC-SM	A-2-4, A-4	0	0-3	99-100	94-100	47-75	14-40	17-35	2-13
	7-20	Sandy clay loam, clay loam, sandy clay	CL, SC, SC-SM	A-6	0	0-7	100	97-100	58-95	36-59	27-44	12-25
	20-36	Sandy clay loam, sandy loam	SC-SM, SC	A-4	0	0-3	100	100	60-90	30-55	24-38	9-19
	36-60	Sandy loam, loamy sand	SC-SM, SM	A-2-4, A-4	0	0-8	100	100	50-75	24-40	0-32	NP-13
Louisburg-------	0-3	Sandy loam, loamy sand	SC-SM, SM	A-2-4, A-4	0	0-8	92-100	85-100	43-75	13-40	17-33	2-12
	3-14	Sandy loam, loamy sand, sand	SC-SM, SM	A-2-4	0	0-14	94-100	88-100	44-75	13-40	16-30	2-12
	14-26	Sandy loam	SC-SM	A-2-4, A-4	0	0-13	92-100	87-100	52-70	26-40	20-31	6-13
	26-38	Sandy loam, loamy sand, coarse sandy loam	SC-SM	A-2-4	0	0-20	89-100	82-100	41-75	12-40	18-31	4-13
	38-71	Loamy sand, sand	SM	A-2-4	0	0-10	99-100	95-100	48-75	5-30	0-23	NP-6
	71-80	Bedrock	SC-SM, SM	A-2-4	---	---	---	---	---	---	---	---
UwD:												
Urban land------	---	---	---	---	---	---	---	---	---	---	---	---
Wynott----------	0-7	Sandy loam, loamy sand, sandy clay loam	SC	A-2, A-2-4	0	0-15	91-100	79-100	43-90	13-47	17-35	2-13
	7-20	Clay, clay loam	CH	A-7-6	0	0-5	86-100	82-100	74-100	57-98	45-74	25-48
	20-30	Sandy loam, sandy clay loam	SC	A-2-6	0	0	89-100	82-100	41-90	12-55	16-49	2-28
	30-42	Bedrock			---	---	---	---	---	---	---	---
	>42	Bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	Percentage passing sieve number--: 10	Percentage passing sieve number--: 40	Percentage passing sieve number--: 200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Mecklenburg-----	0-6	Sandy loam, loamy sand	SC-SM	A-2-6, A-4	0	0-22	46-100	46-100	25-75	8-40	17-34	2-13
	6-28	Clay, sandy clay, clay loam	CH	A-7	0	0-23	99-100	95-100	82-100	44-92	43-67	25-44
	28-38	Sandy clay loam, clay loam, loam	CL	A-6, A-7-6	0	0	100	95-100	59-100	29-80	24-49	9-28
	38-80	Sandy loam, sandy clay loam, loamy sand	SM	A-2-6, A-4	0	0	100	97-100	49-90	15-55	16-35	2-17
Wilkes----------	0-4	Sandy loam, loamy sand	SC-SM, SC	A-2-6, A-4	0	0-20	49-100	49-100	25-75	8-40	17-34	2-13
	4-10	Sandy clay loam, sandy clay	CL	A-7-6, A-7	0	0-24	99-100	95-100	82-100	44-61	31-47	13-26
	10-18	Sandy loam, loam	CL	A-6	0	0	100	95-100	59-100	29-80	24-32	9-13
	18-58	Bedrock			---	---	---	---	---	---	---	---
	>58	Bedrock			---	---	---	---	---	---	---	---
WbA:												
Wehadkee--------	0-5	Silt loam, sandy loam, loam	SC-SM	A-4	0	0	100	100	87-100	74-89	20-41	2-13
	5-25	Sandy clay loam, silty clay loam, loam, sandy loam	CL, SC	A-7, A-6	0	0	95-100	94-100	74-96	42-61	27-47	12-24
	25-60	Sandy loam, sandy clay loam, loamy sand	CL, CL-ML, SC, SC-SM, SM	A-6, A-4, A-2-4	0	0	100	95-100	60-100	20-95	16-47	2-24
Cartecay--------	0-4	Sandy loam	SC-SM, SM	A-4	0	0	89-100	89-100	64-81	30-55	25-36	6-13
	4-37	Sandy loam, loamy sand	SC-SM	A-2, A-4	0	0-3	89-100	89-100	65-83	30-55	18-30	4-12
	37-66	Sandy loam, loamy sand, sand	SM	A-4	0	0-3	41-100	40-100	40-84	30-55	0-28	NP-10

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
WcB:												
Wickham---------	0-7	Fine sandy loam	SC-SM, CH, CL, CL-ML, GC, GC-GM, GM, GP-GM, GW-GM, MH, ML, SC, SM, SP-SM, SW-SM	A-4, A-2, A-2-4	0	0	85-100	84-100	63-82	32-45	20-31	4-10
	7-12	Sandy loam	CL-ML, CH, CL, GC, GC-GM, GM, GP-GM, GW-GM, MH, ML, SC, SC-SM, SM, SP-SM, SW-SM	A-6, A-4	0	0	95-100	90-100	70-100	45-80	20-32	6-13
	12-54	Sandy clay loam, clay loam, loam	CL, SC, CH, CL-ML, GC, GC-GM, GM, GP-GM, GW-GM, MH, ML, SC-SM, SM, SP-SM, SW-SM	A-7, A-6, A-7-6	0	0	100	100	78-95	42-59	27-44	12-25
	54-80	Sandy loam	SC-SM, CH, CL, CL-ML, GC, GC-GM, GM, GP-GM, GW-GM, MH, ML, SC, SM, SP-SM, SW-SM	A-4	0	0	100	100	75-82	38-45	18-27	4-10
WmD:												
Wynott----------	0-7	Sandy loam, loamy sand, sandy clay loam	SC	A-2, A-2-4	0	0-8	91-100	79-100	43-90	13-47	17-35	2-13
	7-20	Clay, clay loam	CH	A-7-6	0	0-5	86-100	82-100	74-100	57-98	45-74	25-48
	20-30	Sandy loam, sandy clay loam	SC	A-2-6	0	0	89-100	82-100	41-90	12-55	16-49	2-28
	30-42	Bedrock			---	---	---	---	---	---	---	---

Table 14.—Engineering Properties—Continued

Map symbol and soil name	Depth	USDA texture	Classification: Unified	Classification: AASHTO	Fragments: >10 inches	Fragments: 3-10 inches	Percentage passing sieve number--: 4	10	40	200	Liquid limit	Plasticity index
	In				Pct	Pct					Pct	
Mecklenburg-----	0-6	Sandy loam, loamy sand	SC-SM	A-2-6, A-4	0	0-8	46-100	46-100	25-75	8-40	17-34	2-13
	6-28	Clay, sandy clay, clay loam	CH	A-7	0	0-23	99-100	95-100	82-100	44-92	43-67	25-44
	28-38	Sandy clay loam, clay loam, loam	CL	A-6, A-7-6	0	0	100	95-100	59-100	29-80	24-49	9-28
	38-80	Sandy loam, sandy clay loam, loamy sand	SM	A-2-6, A-4	0	0	100	97-100	49-90	15-55	16-35	2-17
Wilkes----------	0-4	Sandy loam, loamy sand	SC-SM, SC	A-2-6, A-4	0	0-20	49-100	49-100	25-75	8-40	17-34	2-13
	4-10	Sandy clay loam, sandy clay	CL	A-7-6, A-7	0	0-24	99-100	95-100	82-100	44-61	31-47	13-26
	10-18	Sandy loam, loam	CL	A-6	0	0	100	95-100	59-100	29-80	24-32	9-13
	18-58	Bedrock			---	---	---	---	---	---	---	---
	>58	Bedrock			---	---	---	---	---	---	---	---

Table 15.—Physical and Chemical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Absence of an entry indicates that data were not estimated.)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Soil reaction	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T
	In	Pct	g/cc	In/hr	In/in	Pct	pH	Pct			
AaA:											
Altavista---------	0-5	8-19	1.50-1.60	2-6	0.10-0.12	0.0-2.9	5.0-6.0	0.5-3.0	.24	.24	5
	5-12	8-19	1.50-1.60	2-6	0.11-0.13	0.0-2.9	5.0-6.0	0.0-0.5	.24	.24	
	12-47	18-40	1.45-1.55	0.6-2	0.12-0.20	0.0-2.9	5.0-6.0	0.0-0.5	.24	.24	
	47-57	8-34	1.45-1.60	0.6-2	0.12-0.20	0.0-2.9	5.0-6.0	0.0-0.5	.24	.24	
	57-74	5-25	1.45-1.65	0.6-2	0.12-0.20	0.0-2.9	5.0-6.0	0.0-0.5	.10	.10	
	74-80	20-34	1.45-1.60	0.6-2	0.12-0.20	0.0-2.9	4.5-6.0	0.0-0.5	.15	.20	
AaB:											
Altavista---------	0-5	8-19	1.50-1.60	2-6	0.12-0.20	0.0-2.9	5.0-6.0	0.5-3.0	.24	.24	5
	5-12	8-19	1.50-1.60	2-6	0.11-0.13	0.0-2.9	5.0-6.0	0.0-0.5	.24	.24	
	12-47	18-40	1.45-1.55	0.6-2	0.12-0.20	0.0-2.9	5.0-6.0	0.0-0.5	.24	.24	
	47-57	8-34	1.45-1.60	0.6-2	0.12-0.20	0.0-2.9	5.0-6.0	0.0-0.5	.24	.24	
	57-74	8-25	1.45-1.65	0.6-2	0.12-0.20	0.0-2.9	5.0-6.0	0.0-0.5	.10	.10	
	74-80	20-34	1.45-1.60	0.6-2	0.12-0.20	0.0-2.9	4.5-6.0	0.0-0.5	.15	.20	
AaC:											
Altavista---------	0-5	8-19	1.50-1.60	2-6	0.12-0.20	0.0-2.9	5.0-6.0	0.5-3.0	.24	.24	5
	5-12	8-19	1.50-1.60	2-6	0.11-0.13	0.0-2.9	5.0-6.0	0.0-0.5	.24	.24	
	12-47	18-40	1.45-1.55	0.6-2	0.12-0.20	0.0-2.9	5.0-6.0	0.0-0.5	.24	.24	
	47-57	8-34	1.45-1.60	0.6-2	0.12-0.20	0.0-2.9	5.0-6.0	0.0-0.5	.24	.24	
	57-74	5-25	1.45-1.65	0.6-2	0.12-0.20	0.0-2.9	5.0-6.0	0.0-0.5	.10	.10	
	74-80	8-34	1.45-1.60	0.6-2	0.12-0.20	0.0-2.9	4.5-6.0	0.0-0.5	.15	.20	
AgB:											
Appling-----------	0-6	5-20	1.40-1.65	2-6	0.10-0.15	0.0-2.9	4.5-6.0	0.5-2.0	.24	.28	4
	6-10	15-30	1.25-1.45	2-6	0.12-0.16	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	10-41	20-50	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	41-51	20-40	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	51-60	12-20	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
Hard Labor--------	0-9	5-20	1.40-1.65	2-6	0.10-0.15	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	4
	9-15	20-28	1.40-1.65	2-6	0.12-0.16	0.0-2.9	4.5-6.0	0.0-1.0	.24	.24	
	15-50	30-45	1.25-1.45	0.2-0.6	0.12-0.16	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
	50-60	20-35	1.25-1.45	0.06-0.2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
AgC:											
Appling-----------	0-6	5-20	1.40-1.65	2-6	0.10-0.15	0.0-2.9	4.5-6.0	0.5-2.0	.24	.28	4
	6-10	15-30	1.25-1.45	2-6	0.12-0.16	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	10-41	20-50	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	41-51	20-40	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	51-60	12-20	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
Hard Labor--------	0-9	5-20	1.40-1.65	2-6	0.10-0.15	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	4
	9-15	20-28	1.40-1.65	2-6	0.10-0.15	0.0-2.9	4.5-6.0	0.0-1.0	.24	.24	
	15-50	30-45	1.25-1.45	0.2-0.6	0.12-0.16	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
	50-60	20-35	1.25-1.45	0.06-0.2	0.12-0.16	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
ArE:											
Ashlar------------	0-6	5-20	1.30-1.55	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-1.0	.24	.24	2
	6-21	5-20	1.30-1.55	2-6	0.08-0.12	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	21-24	---	---	---	---	---	---	---	---	---	
	>24	---	---	---	---	---	---	---	---	---	
Rion--------------	0-7	5-20	1.30-1.50	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	7-20	20-35	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
	20-36	18-28	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
	36-60	2-20	1.30-1.50	0.6-2	0.06-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	

Table 15.—Physical and Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Soil reaction	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	pH	Pct			
BaA:											
Buncombe----------	0-10	3-12	1.55-1.65	6-20	0.06-0.10	0.0-2.9	4.5-5.5	0.5-1.0	.10	.10	5
	10-60	3-12	1.55-1.70	6-20	0.03-0.07	0.0-2.9	4.5-5.5	0.0-0.2	.10	.10	
CaA:											
Cartecay----------	0-4	10-19	1.25-1.45	6-20	0.08-0.12	0.0-2.9	5.1-6.0	2.0-3.0	.24	.24	5
	4-37	8-18	1.30-1.50	2-6	0.09-0.12	0.0-2.9	5.1-6.0	0.0-0.5	.24	.24	
	37-66	2-16	1.30-1.55	6-20	0.09-0.11	0.0-2.9	5.1-6.0	0.0-0.5	.15	.20	
Toccoa------------	0-6	8-18	1.50-1.60	2-6	0.10-0.12	0.0-2.9	5.1-6.0	1.0-2.0	.10	.10	4
	6-80	4-19	1.50-1.65	2-6	0.09-0.12	0.0-2.9	5.1-6.0	0.0-0.5	.20	.20	
CeB2:											
Cecil-------------	0-3	10-20	1.30-1.50	2-6	0.12-0.14	0.0-2.9	4.5-6.0	0.5-1.0	.24	.24	4
	3-9	20-28	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	9-26	30-60	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	26-31	30-60	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	31-50	20-50	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	50-60	15-30	1.20-1.50	0.6-2	0.08-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
CeC2:											
Cecil-------------	0-3	10-20	1.30-1.50	2-6	0.12-0.14	0.0-2.9	4.5-6.0	0.5-1.0	.24	.24	4
	3-9	20-28	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	9-26	35-60	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	26-31	35-60	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	31-50	20-50	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	50-60	15-30	1.20-1.50	0.6-2	0.08-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
CpA:											
Congaree----------	0-8	10-25	1.50-1.60	2-6	0.12-0.14	0.0-2.9	4.5-6.0	1.0-3.0	.24	.24	5
	8-74	10-35	1.20-1.50	0.6-2	0.12-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.37	.37	
CrA:											
Congaree----------	0-8	10-20	1.50-1.60	2-6	0.12-0.14	0.0-2.9	4.5-6.0	1.0-3.0	.24	.24	5
	8-74	10-25	1.20-1.50	0.6-2	0.12-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.37	.37	
Cartecay----------	0-4	10-19	1.25-1.45	6-20	0.08-0.12	0.0-2.9	5.1-6.0	2.0-3.0	.24	.24	5
	4-37	8-18	1.30-1.50	2-6	0.09-0.12	0.0-2.9	5.1-6.0	0.0-0.5	.24	.24	
	37-66	2-16	1.30-1.55	6-20	0.09-0.11	0.0-2.9	5.1-6.0	0.0-0.5	.15	.20	
EnC:											
Enon--------------	0-4	5-15	1.45-1.65	2-6	0.11-0.15	0.0-2.9	5.1-6.5	0.5-2.0	.24	.28	3
	4-6	10-35	1.30-1.50	0.6-2	0.12-0.15	0.0-2.9	5.1-6.5	0.2-1.2	.24	.24	
	6-16	30-60	1.20-1.40	0.06-0.2	0.12-0.16	6.0-8.9	5.1-6.5	0.0-0.5	.28	.28	
	16-27	15-30	1.30-1.50	0.2-0.6	0.12-0.16	0.0-2.9	4.5-6.5	0.0-0.5	.28	.28	
	27-75	5-25	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.5	0.0-0.2	.24	.28	
Wynott------------	0-7	5-25	1.50-1.60	2-6	0.11-0.15	0.0-2.9	4.5-6.5	0.5-2.0	.24	.24	3
	7-20	35-65	1.25-1.45	0.06-0.2	0.13-0.20	6.0-8.9	4.5-6.5	0.0-0.5	.28	.28	
	20-30	5-35	1.45-1.60	0.2-0.6	0.11-0.15	0.0-2.9	5.6-6.5	0.0-0.5	.28	.28	
	30-42	---	---	---	---	---	---	---	---	---	
	>42	---	---	---	---	---	---	---	---	---	
GaC:											
Grover------------	0-4	13-20	1.45-1.60	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	4-11	13-20	1.45-1.60	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	11-14	15-30	1.45-1.60	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	14-25	18-35	1.25-1.40	0.6-2	0.12-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	25-31	15-25	1.50-1.60	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	31-80	8-15	1.60-1.70	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	

Table 15.—Physical and Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Soil reaction	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T
	In	Pct	g/cc	In/hr	In/in	Pct	pH	Pct			
Mountain Park-----	0-4	8-19	1.45-1.65	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	4-10	8-19	1.45-1.65	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	10-23	20-36	1.25-1.40	0.6-2	0.12-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	23-32	15-25	1.45-1.60	0.6-2	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	32-46	---	---	---	---	---	---	---	---	---	
	46-55	8-16	1.60-1.70	0.6-2	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	55-65	---	---	---	---	---	---	---	---	---	
GaE:											
Grover------------	0-4	13-20	1.45-1.60	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	4-11	13-20	1.45-1.60	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	11-14	15-30	1.45-1.60	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	14-25	18-35	1.25-1.40	0.6-2	0.12-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	25-31	15-25	1.50-1.60	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	31-80	8-15	1.60-1.70	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
Mountain Park-----	0-4	8-19	1.45-1.65	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	4-10	8-19	1.45-1.65	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	10-23	20-36	1.25-1.40	0.6-2	0.12-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	23-32	15-25	1.45-1.60	0.6-2	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	32-46	---	---	---	---	---	---	---	---	---	
	46-55	8-16	1.60-1.70	0.6-2	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	55-65	---	---	---	---	---	---	---	---	---	
GaF:											
Grover------------	0-4	13-20	1.45-1.60	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	4-11	13-20	1.45-1.60	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	11-14	15-30	1.45-1.60	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	14-25	18-35	1.25-1.40	0.6-2	0.12-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	25-31	15-25	1.50-1.60	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	31-80	8-15	1.60-1.70	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
Mountain Park-----	0-4	8-19	1.45-1.65	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	4-10	8-19	1.45-1.65	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	10-23	20-36	1.25-1.40	0.6-2	0.12-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	23-32	15-25	1.45-1.60	0.6-2	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	32-46	---	---	---	---	---	---	---	---	---	
	46-55	8-16	1.60-1.70	0.6-2	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	55-65	---	---	---	---	---	---	---	---	---	
HbB:											
Hiwassee----------	0-6	5-15	1.45-1.65	2-6	0.10-0.14	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	5
	6-35	30-40	1.30-1.45	0.6-2	0.12-0.15	0.0-2.9	4.5-6.0	0.0-0.2	.28	.28	
	35-80	20-36	1.45-1.65	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.2	.28	.28	
HbC:											
Hiwassee----------	0-6	5-15	1.45-1.65	2-6	0.10-0.14	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	5
	6-35	30-40	1.30-1.45	0.6-2	0.12-0.15	0.0-2.9	4.5-6.0	0.0-0.2	.28	.28	
	35-80	20-36	1.45-1.65	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.2	.28	.28	
LaD2:											
Lloyd-------------	0-4	7-20	1.50-1.60	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	5
	4-25	30-45	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
	25-40	12-30	1.45-1.55	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
	40-80	5-15	1.50-1.60	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
Gwinnett----------	0-5	10-20	1.35-1.55	2-6	0.11-0.17	0.0-2.9	4.5-6.1	1.0-2.5	.28	.28	4
	5-22	30-60	1.30-1.45	0.6-2	0.11-0.16	0.0-2.9	4.5-6.1	0.0-0.5	.28	.28	
	22-38	30-40	1.30-1.45	0.6-2	0.12-0.15	0.0-2.9	4.5-6.1	0.0-0.2	.28	.28	
	38-41	24-40	1.35-1.50	0.6-2	0.12-0.18	0.0-2.9	4.5-6.1	0.0-0.5	.28	.28	
	41-60	---	---	---	---	---	---	---	---	---	

Table 15.—Physical and Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Soil reaction	Organic matter	Erosion factors Kw	Erosion factors Kf	Erosion factors T
	In	Pct	g/cc	In/hr	In/in	Pct	pH	Pct			
MdB2:											
Madison-----------	0-5	5-20	1.50-1.60	2-6	0.08-0.12	0.0-2.9	4.5-6.5	0.5-2.0	.24	.24	4
	5-24	30-50	1.35-1.45	0.6-2	0.12-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.32	.32	
	24-38	25-35	1.45-1.55	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	38-50	25-35	1.45-1.55	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	50-60	5-20	1.50-1.60	0.6-2	0.08-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.37	.37	
Bethlehem---------	0-5	10-20	1.50-1.60	2-6	0.08-0.12	0.0-2.9	4.5-5.5	1.0-2.5	.24	.24	2
	5-27	30-45	1.25-1.50	0.6-2	0.11-0.13	0.0-2.9	4.5-5.5	0.0-0.5	.28	.32	
	27-30	20-35	1.45-1.55	0.6-2	0.10-0.12	0.0-2.9	4.5-5.5	0.0-0.2	.28	.32	
	30-56	---	---	---	---	---	---	---	---	---	
MdC2:											
Madison-----------	0-5	5-20	1.50-1.60	2-6	0.08-0.12	0.0-2.9	4.5-6.5	0.5-2.0	.24	.24	4
	5-24	30-50	1.35-1.45	0.6-2	0.12-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.32	.32	
	24-38	25-35	1.45-1.55	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	38-50	25-35	1.45-1.55	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	50-60	5-20	1.50-1.60	0.6-2	0.08-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.37	.37	
Bethlehem---------	0-5	10-20	1.50-1.60	2-6	0.08-0.12	0.0-2.9	4.5-5.5	1.0-2.5	.24	.24	2
	5-27	30-45	1.25-1.50	0.6-2	0.11-0.13	0.0-2.9	4.5-5.5	0.0-0.5	.28	.32	
	27-30	20-35	1.45-1.55	0.6-2	0.10-0.12	0.0-2.9	4.5-5.5	0.0-0.2	.28	.32	
	30-56	---	---	---	---	---	---	---	---	---	
PaB2:											
Pacolet-----------	0-5	8-20	1.45-1.55	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-1.0	.24	.24	3
	5-10	20-24	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	10-26	35-50	1.30-1.50	0.6-2	0.12-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
	26-36	15-30	1.20-1.50	0.6-2	0.08-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
	36-66	10-25	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
PaD2:											
Pacolet-----------	0-5	8-20	1.45-1.55	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-1.0	.24	.24	3
	5-10	20-24	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	10-26	35-50	1.30-1.50	0.6-2	0.12-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
	26-36	15-30	1.20-1.50	0.6-2	0.08-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
	36-66	10-25	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
PaE2:											
Pacolet-----------	0-5	8-20	1.45-1.55	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-1.0	.24	.24	3
	5-10	20-24	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	10-26	35-50	1.30-1.50	0.6-2	0.12-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
	26-36	15-30	1.20-1.50	0.6-2	0.08-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
	36-66	10-25	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
PgC2:											
Pacolet-----------	0-5	8-20	1.45-1.55	2-6	0.08-0.12	0.0-2.9	4.5-6.5	0.5-1.0	.24	.24	3
	5-10	20-24	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.5	0.0-0.5	.24	.24	
	10-26	35-50	1.30-1.50	0.6-2	0.12-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
	26-36	15-30	1.20-1.50	0.6-2	0.08-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
	36-66	10-25	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
Saw---------------	0-5	5-20	1.50-1.60	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	2
	5-17	35-50	1.25-1.45	0.6-2	0.12-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	17-22	5-35	1.45-1.60	0.6-2	0.09-0.13	0.0-2.9	4.5-5.5	0.0-0.2	.20	.28	
	>22	---	---	---	---	---	---	---	---	---	

Table 15.—Physical and Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Soil reaction	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	pH	Pct			
ReD:											
Rion	0-7	5-20	1.30-1.50	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	7-20	18-35	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
	20-36	15-28	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
	36-60	2-20	1.30-1.50	0.6-2	0.06-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
ReE:											
Rion	0-7	5-20	1.30-1.50	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	7-20	18-35	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
	20-36	15-28	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
	36-60	2-20	1.30-1.50	0.6-2	0.06-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
RoE:											
Rion	0-7	5-20	1.30-1.50	2-6	0.08-0.12	0.0-2.9	4.5-6.5	0.5-2.0	.24	.24	3
	7-20	18-35	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.5	0.0-0.5	.20	.24	
	20-36	15-28	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.5	0.0-0.5	.20	.24	
	36-60	2-20	1.30-1.50	0.6-2	0.06-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
Louisburg	0-3	5-18	1.25-1.45	6-20	0.09-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.10	.15	3
	3-14	5-18	1.25-1.45	6-20	0.09-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	14-26	10-19	1.30-1.50	6-20	0.09-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	26-38	8-19	1.25-1.45	6-20	0.09-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	38-71	3-10	1.30-1.50	6-20	0.08-0.10	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	71-80	---	---	---	---	---	---	---	---	---	
RoF:											
Rion	0-7	5-20	1.30-1.50	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	7-20	18-35	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
	20-36	15-28	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
	36-60	2-20	1.30-1.50	0.6-2	0.06-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
Louisburg	0-3	5-18	1.25-1.45	6-20	0.09-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.10	.15	3
	3-14	5-18	1.25-1.45	6-20	0.09-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	14-26	10-19	1.30-1.50	6-20	0.09-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	26-38	8-19	1.25-1.45	6-20	0.09-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	38-71	3-10	1.30-1.50	6-20	0.08-0.10	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	71-80	---	---	---	---	---	---	---	---	---	
UcC:											
Urban land	---	---	---	---	---	---	---	---	---	---	--
Altavista	0-5	8-19	1.50-1.60	2-6	0.12-0.20	0.0-2.9	5.0-6.0	0.5-3.0	.24	.24	5
	5-12	8-19	1.50-1.60	2-6	0.11-0.13	0.0-2.9	5.0-6.0	0.0-0.5	.24	.24	
	12-47	20-35	1.45-1.55	0.6-2	0.12-0.20	0.0-2.9	5.0-6.0	0.0-0.5	.24	.24	
	47-57	8-34	1.45-1.60	0.6-2	0.12-0.20	0.0-2.9	5.0-6.0	0.0-0.5	.24	.24	
	57-74	5-25	1.45-1.65	0.6-2	0.12-0.20	0.0-2.9	5.0-6.0	0.0-0.5	.10	.10	
	74-80	20-34	1.45-1.60	0.6-2	0.12-0.20	0.0-2.9	4.5-6.0	0.0-0.5	.15	.20	
UdC:											
Urban land	---	---	---	---	---	---	---	---	---	---	--
Appling	0-6	5-20	1.40-1.65	2-6	0.10-0.15	0.0-2.9	4.5-6.0	0.5-2.0	.24	.28	4
	6-10	15-30	1.25-1.45	2-6	0.12-0.16	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	10-41	20-50	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	41-51	20-40	1.25-1.45	0.6-2	0.12-0.16	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	51-60	12-20	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
Hard Labor	0-9	5-20	1.40-1.65	2-6	0.10-0.15	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	4
	9-15	15-28	1.40-1.65	2-6	0.12-0.16	0.0-2.9	4.5-6.0	0.0-1.0	.24	.24	
	15-50	30-45	1.25-1.45	0.2-0.6	0.12-0.16	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
	50-60	20-35	1.25-1.45	0.06-0.2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	

Table 15.—Physical and Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Soil reaction	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	pH	Pct			
UeE:											
Urban land	---	---	---	---	---	---	---	---	---	---	--
Ashlar	0-6	5-20	1.30-1.55	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-1.0	.24	.24	2
	6-21	5-20	1.30-1.55	2-6	0.08-0.12	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	21-24	---	---	---	---	---	---	---	---	---	
	>24	---	---	---	---	---	---	---	---	---	
Rion	0-7	5-20	1.30-1.50	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	7-20	20-35	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
	20-36	18-28	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
	36-60	2-20	1.30-1.50	0.6-2	0.06-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
UfC2:											
Urban land	---	---	---	---	---	---	---	---	---	---	--
Cecil	0-3	10-20	1.30-1.50	2-6	0.12-0.14	0.0-2.9	4.5-6.0	0.5-1.0	.24	.24	4
	3-9	20-28	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	9-26	30-60	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	26-31	30-60	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	31-50	20-50	1.30-1.50	0.6-2	0.13-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	50-60	15-30	1.20-1.50	0.6-2	0.08-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
UgC:											
Urban land	---	---	---	---	---	---	---	---	---	---	--
Grover	0-4	13-20	1.45-1.60	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	4-11	13-20	1.45-1.60	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	11-14	15-30	1.45-1.60	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	14-25	18-35	1.25-1.40	0.6-2	0.12-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	25-31	15-25	1.50-1.60	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	31-80	8-15	1.60-1.70	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
Mountain Park	0-4	8-19	1.45-1.65	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	4-10	8-19	1.45-1.65	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	10-23	20-36	1.25-1.40	0.6-2	0.12-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	23-32	15-25	1.45-1.60	0.6-2	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	32-46	---	---	---	---	---	---	---	---	---	
	46-55	8-16	1.60-1.70	0.6-2	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	55-65	---	---	---	---	---	---	---	---	---	
UgE:											
Urban land	---	---	---	---	---	---	---	---	---	---	--
Grover	0-4	13-20	1.45-1.60	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	4-11	13-20	1.45-1.60	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	11-14	15-30	1.45-1.60	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	14-25	18-35	1.25-1.40	0.6-2	0.12-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	25-31	15-25	1.50-1.60	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	31-80	8-15	1.60-1.70	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
Mountain Park	0-4	8-19	1.45-1.65	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	4-10	8-19	1.45-1.65	2-6	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	10-23	20-36	1.25-1.40	0.6-2	0.12-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	23-32	15-25	1.45-1.60	0.6-2	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	32-46	---	---	---	---	---	---	---	---	---	
	46-55	8-16	1.60-1.70	0.6-2	0.10-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	55-65	---	---	---	---	---	---	---	---	---	

Table 15.—Physical and Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea-bility (Ksat)	Available water capacity	Linear extensi-bility	Soil reaction	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	pH	Pct			
UmC2:											
Urban land--------	---	---	---	---	---	---	---	---	---	---	--
Madison-----------	0-5	5-20	1.50-1.60	2-6	0.08-0.12	0.0-2.9	4.5-6.5	0.5-2.0	.24	.24	4
	5-24	30-50	1.35-1.45	0.6-2	0.12-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.32	.32	
	24-38	25-35	1.45-1.55	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	38-50	25-35	1.45-1.55	0.6-2	0.10-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.32	.32	
	50-60	5-20	1.50-1.60	0.6-2	0.08-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.37	.37	
Bethlehem---------	0-5	10-20	1.50-1.60	2-6	0.08-0.12	0.0-2.9	4.5-5.5	1.0-2.5	.24	.24	2
	5-27	30-45	1.25-1.50	0.6-2	0.11-0.13	0.0-2.9	4.5-5.5	0.0-0.5	.28	.32	
	27-30	20-35	1.45-1.55	0.6-2	0.10-0.12	0.0-2.9	4.5-5.5	0.0-0.2	.28	.32	
	30-56	---	---	---	---	---	---	---	---	---	
UpC2:											
Urban land--------	---	---	---	---	---	---	---	---	---	---	--
Pacolet-----------	0-5	8-20	1.45-1.55	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-1.0	.24	.24	3
	5-10	20-24	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	10-26	35-50	1.30-1.50	0.6-2	0.12-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
	26-36	15-30	1.20-1.50	0.6-2	0.08-0.14	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
	36-66	10-25	1.20-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.28	.28	
Saw---------------	0-5	5-20	1.50-1.60	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	2
	5-17	35-50	1.25-1.45	0.6-2	0.12-0.15	0.0-2.9	4.5-5.5	0.0-0.5	.28	.28	
	17-22	5-35	1.45-1.60	0.6-2	0.09-0.13	0.0-2.9	4.5-5.5	0.0-0.2	.20	.28	
	>22	---	---	---	---	---	---	---	---	---	
UrE:											
Urban land--------	---	---	---	---	---	---	---	---	---	---	--
Rion--------------	0-7	5-20	1.30-1.50	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	7-20	18-35	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
	20-36	15-28	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
	36-60	2-20	1.30-1.50	0.6-2	0.06-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
UsE:											
Urban land--------	---	---	---	---	---	---	---	---	---	---	--
Rion--------------	0-7	5-20	1.30-1.50	2-6	0.08-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	7-20	18-35	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
	20-36	15-28	1.40-1.50	0.6-2	0.08-0.15	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
	36-60	2-20	1.30-1.50	0.6-2	0.06-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.20	.24	
Louisburg---------	0-3	5-18	1.25-1.45	6-20	0.09-0.12	0.0-2.9	4.5-6.0	0.5-2.0	.10	.15	3
	3-14	5-18	1.25-1.45	6-20	0.09-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	14-26	10-19	1.30-1.50	6-20	0.09-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	26-38	8-19	1.25-1.45	6-20	0.09-0.12	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	38-71	3-10	1.30-1.50	6-20	0.08-0.10	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	71-80	---	---	---	---	---	---	---	---	---	
UwD:											
Urban land--------	---	---	---	---	---	---	---	---	---	---	--
Wynott------------	0-7	5-25	1.50-1.60	2-6	0.11-0.15	0.0-2.9	4.5-6.5	0.5-2.0	.24	.24	3
	7-20	35-65	1.25-1.45	0.06-0.2	0.13-0.20	6.0-8.9	4.5-6.5	0.0-0.5	.28	.28	
	20-30	5-35	1.45-1.60	0.2-0.6	0.11-0.15	0.0-2.9	5.6-6.5	0.0-0.5	.28	.28	
	30-42	---	---	---	---	---	---	---	---	---	
	>42	---	---	---	---	---	---	---	---	---	

Table 15.—Physical and Chemical Properties of the Soils—Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permea- bility (Ksat)	Available water capacity	Linear extensi- bility	Soil reaction	Organic matter	Erosion factors Kw	Kf	T
	In	Pct	g/cc	In/hr	In/in	Pct	pH	Pct			
Mecklenburg-------	0-6	5-19	1.30-1.50	2-6	0.14-0.19	0.0-2.9	5.5-7.3	0.5-2.0	.24	.24	4
	6-28	35-60	1.40-1.60	0.06-0.2	0.12-0.14	3.0-5.9	5.5-7.3	0.0-0.5	.28	.28	
	28-38	15-40	1.40-1.60	0.6-2	0.12-0.14	0.0-2.9	5.5-7.3	0.0-0.5	.32	.32	
	38-80	5-25	1.30-1.60	0.6-2	0.15-0.20	0.0-2.9	5.3-7.3	0.0-0.2	.24	.28	
Wilkes------------	0-4	5-19	1.50-1.60	0.6-2	0.11-0.15	0.0-2.9	5.5-6.5	0.5-2.0	.24	.24	2
	4-10	20-36	1.35-1.55	0.06-0.2	0.13-0.20	3.0-5.9	5.5-6.8	0.0-0.5	.32	.32	
	10-18	15-20	1.40-1.60	0.6-2	0.10-0.14	0.0-2.9	5.5-6.5	0.0-0.5	.24	.24	
	18-58	---	---	---	---	---	---	---	---	---	
	>58	---	---	---	---	---	---	---	---	---	
WbA:											
Wehadkee----------	0-5	5-20	1.35-1.50	0.6-2	0.15-0.24	0.0-2.9	4.5-6.0	2.0-5.0	.24	.24	5
	5-25	18-35	1.30-1.50	0.6-2	0.16-0.20	0.0-2.9	4.5-6.0	0.0-2.0	.32	.32	
	25-60	5-35	1.35-1.60	0.6-2	0.08-0.20	0.0-2.9	4.5-6.0	0.0-2.0	.24	.24	
Cartecay----------	0-4	10-19	1.25-1.45	6-20	0.08-0.12	0.0-2.9	5.1-6.0	2.0-3.0	.24	.24	5
	4-37	8-18	1.30-1.50	2-6	0.09-0.12	0.0-2.9	5.1-6.0	0.0-0.5	.24	.24	
	37-66	2-16	1.30-1.55	6-20	0.09-0.11	0.0-2.9	5.1-6.0	0.0-0.5	.15	.20	
WcB:											
Wickham-----------	0-7	8-15	1.45-1.65	2-6	0.11-0.16	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	5
	7-12	10-20	1.40-1.60	2-6	0.11-0.16	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	12-54	18-35	1.30-1.50	0.6-2	0.12-0.17	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
	54-80	8-15	1.40-1.60	0.6-2	0.11-0.16	0.0-2.9	4.5-6.0	0.0-0.5	.24	.24	
WmD:											
Wynott------------	0-7	5-25	1.50-1.60	2-6	0.11-0.15	0.0-2.9	4.5-6.0	0.5-2.0	.24	.24	3
	7-20	35-65	1.25-1.45	0.06-0.2	0.13-0.20	6.0-8.9	4.5-6.0	0.0-0.5	.28	.28	
	20-30	5-40	1.45-1.60	0.2-0.6	0.11-0.15	0.0-2.9	5.6-6.0	0.0-0.5	.28	.28	
	30-42	---	---	---	---	---	---	---	---	---	
Mecklenburg-------	0-6	5-19	1.30-1.50	2-6	0.14-0.19	0.0-2.9	5.1-6.5	0.5-2.0	.24	.24	4
	6-28	35-60	1.40-1.60	0.06-0.2	0.12-0.14	3.0-5.9	5.1-6.5	0.0-0.5	.28	.28	
	28-38	15-40	1.40-1.60	0.6-2	0.12-0.14	0.0-2.9	5.1-6.5	0.0-0.5	.32	.32	
	38-80	5-25	1.30-1.60	0.6-2	0.15-0.20	0.0-2.9	6.1-7.3	0.0-0.2	.24	.28	
Wilkes------------	0-4	5-19	1.50-1.60	0.6-2	0.11-0.15	0.0-2.9	5.5-6.5	0.5-2.0	.24	.24	2
	4-10	20-36	1.35-1.55	0.06-0.2	0.13-0.20	3.0-5.9	5.5-6.8	0.0-0.5	.32	.32	
	10-18	15-20	1.40-1.60	0.6-2	0.10-0.14	0.0-2.9	5.5-6.5	0.0-0.5	.24	.24	
	18-58	---	---	---	---	---	---	---	---	---	
	>58	---	---	---	---	---	---	---	---	---	

Table 16.—Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft		Ft				
AaA:									
Altavista-------	C	Jan-Apr	1.5-2.5	Apparent	---	---	None	Very brief	Rare
		May-Nov	>6.0	---	---	---	None	---	---
		Dec	1.5-2.5	Apparent	---	---	None	Very brief	Rare
AaB:									
Altavista-------	C	Jan-Apr	1.5-2.5	Apparent	---	---	None	---	None
		May-Nov	>6.0	---	---	---	None	---	None
		Dec	1.5-2.5	Apparent	---	---	None	---	None
AaC:									
Altavista-------	C	Jan-Apr	1.5-2.5	Apparent	---	---	None	---	None
		May-Nov	>6.0	---	---	---	None	---	None
		Dec	1.5-2.5	Apparent	---	---	None	---	None
AgB:									
Appling---------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Hard Labor------	B	Jan-Apr	2.5-3.3	Perched	---	---	None	---	None
		May-Nov	>6.0	---	---	---	None	---	None
		Dec	2.5-3.3	Perched	---	---	None	---	None
AgC:									
Appling---------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Hard Labor------	B	Jan-Apr	2.5-3.3	Perched	---	---	None	---	None
		May-Nov	>6.0	---	---	---	None	---	None
		Dec	2.5-3.3	Perched	---	---	None	---	None
ArE:									
Ashlar----------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Rion------------	B	Jan-Dec	>6.0	---	---	---	None	---	None
BaA:									
Buncombe--------	A	Jan-Apr	---	---	---	---	None	Brief	Occasional
		May-Nov	---	---	---	---	None	---	---
		Dec	---	---	---	---	None	Brief	Occasional
CaA:									
Cartecay--------	C	Jan-Apr	0.8-1.7	Apparent	---	---	None	Brief	Occasional
		May-Nov	>5.5	---	---	---	None	---	---
		Dec	0.8-1.7	---	---	---	None	Brief	Occasional
Toccoa----------	B	Jan-Apr	2.5-5.0	Apparent	---	---	None	Brief	Occasional
		May-Nov	>6.0	---	---	---	None	---	---
		Dec	2.5-5.0	Apparent	---	---	None	Brief	Occasional
CeB2:									
Cecil-----------	B	Jan-Dec	>6.0	---	---	---	None	---	None
CeC2:									
Cecil-----------	B	Jan-Dec	>6.0	---	---	---	None	---	None

Table 16.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft		Ft				
CpA:									
Congaree--------	B	Jan-Apr	2.5-4.0	Apparent	---	---	None	Brief	Occasional
		May-Nov	---	---	---	---	None	---	---
		Dec	2.5-4.0	Apparent	---	---	None	Brief	Occasional
CrA:									
Congaree--------	B	Jan-Apr	2.5-4.0	Apparent	---	---	None	Brief	Occasional
		May-Nov	---	---	---	---	None	---	---
		Dec	2.5-4.0	Apparent	---	---	None	Brief	Occasional
Cartecay--------	C	Jan-Apr	0.8-1.7	Apparent	---	---	None	Brief	Occasional
		May-Nov	>5.5	---	---	---	None	---	---
		Dec	0.8-1.7	Apparent	---	---	None	Brief	Occasional
EnC:									
Enon------------	C	Jan-Dec	>6.0	---	---	---	None	---	None
Wynott----------	C	Jan-Dec	>6.0	---	---	---	None	---	None
GaC:									
Grover----------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Mountain Park---	B	Jan-Dec	>6.0	---	---	---	None	---	None
GaE:									
Grover----------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Mountain Park---	B	Jan-Dec	>6.0	---	---	---	None	---	None
GaF:									
Grover----------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Mountain Park---	B	Jan-Dec	>6.0	---	---	---	None	---	None
HbB:									
Hiwassee--------	B	Jan-Dec	>6.0	---	---	---	None	---	None
HbC:									
Hiwassee--------	B	Jan-Dec	>6.0	---	---	---	None	---	None
LaD2:									
Lloyd-----------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Gwinnett--------	B	Jan-Dec	>6.0	---	---	---	None	---	None
MdB2:									
Madison---------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Bethlehem-------	B	Jan-Dec	>6.0	---	---	---	None	---	None
MdC2:									
Madison---------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Bethlehem-------	B	Jan-Dec	>6.0	---	---	---	None	---	None
PaB2:									
Pacolet---------	B	Jan-Dec	>6.0	---	---	---	None	---	None
PaD2:									
Pacolet---------	B	Jan-Dec	>6.0	---	---	---	None	---	None

Table 16.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Months	Water table		Ponding			Flooding	
			Upper limit	Kind	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft		Ft				
PaE2:									
Pacolet---------	B	Jan-Dec	>6.0	---	---	---	None	---	None
PgC2:									
Pacolet---------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Saw-------------	B	Jan-Dec	>6.0	---	---	---	None	---	None
ReD:									
Rion------------	B	Jan-Dec	>6.0	---	---	---	None	---	None
ReE:									
Rion------------	B	Jan-Dec	>6.0	---	---	---	None	---	None
RoE:									
Rion------------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Louisburg-------	B	Jan-Dec	>6.0	---	---	---	None	---	None
RoF:									
Rion------------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Louisburg-------	B	Jan-Dec	>6.0	---	---	---	None	---	None
UcC:									
Altavista-------	C	Jan-Apr	1.5-2.5	Apparent	---	---	None	---	None
		May-Nov	>6.0	---	---	---	None	---	None
		Dec	1.5-2.5	Apparent	---	---	None	---	None
UdC:									
Appling---------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Hard Labor------	B	Jan-Apr	2.5-3.3	Perched	---	---	None	---	None
		May-Nov	>6.0	---	---	---	None	---	None
		Dec	2.5-3.3	Perched	---	---	None	---	None
UeE:									
Ashlar----------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Rion------------	B	Jan-Dec	>6.0	---	---	---	None	---	None
UfC2:									
Cecil-----------	B	Jan-Dec	>6.0	---	---	---	None	---	None
UgC:									
Grover----------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Mountain Park---	B	Jan-Dec	>6.0	---	---	---	None	---	None
UgE:									
Grover----------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Mountain Park---	B	Jan-Dec	>6.0	---	---	---	None	---	None
UmC2:									
Madison---------	B	Jan-Dec	>6.0	---	---	---	None	---	None
Bethlehem-------	B	Jan-Dec	>6.0	---	---	---	None	---	None

Table 16.—Water Features—Continued

Map symbol and soil name	Hydro-logic group	Months	Water table: Upper limit	Water table: Kind	Ponding: Surface water depth	Ponding: Duration	Ponding: Frequency	Flooding: Duration	Flooding: Frequency
			Ft		Ft				
UpC2:									
Pacolet	B	Jan-Dec	>6.0	---	---	---	None	---	None
Saw	B	Jan-Dec	>6.0	---	---	---	None	---	None
UrE:									
Rion	B	Jan----	---	---	---	---	None	---	None
UsE:									
Rion	B	Jan----	---	---	---	---	None	---	None
Louisburg	B	Jan-Dec	>6.0	---	---	---	None	---	None
UwD:									
Wynott	C	Jan-Dec	>6.0	---	---	---	None	---	None
Mecklenburg	C	Jan-Dec	>6.0	---	---	---	None	---	None
Wilkes	C	Jan-Dec	>6.0	---	---	---	None	---	None
WbA:									
Wehadkee	D	Jan-Jun	0.0-1.0	Apparent	0.0-0.4	Long	Occasional	Long	Occasional
		Jul-Oct	0.0-1.0	Apparent	---	---	---	---	---
		Nov	>5.0	---	---	---	---	---	---
		Dec	0.0-1.0	Apparent	0.0-0.4	Long	Occasional	Long	Occasional
Cartecay	C	Jan-Apr	0.8-1.7	Apparent	---	---	None	Brief	Occasional
		May-Nov	>6.0	---	---	---	None	---	---
		Dec	0.8-1.7	Apparent	---	---	None	Brief	Occasional
WcB:									
Wickham	B	Jan-Dec	>6.0	---	---	---	None	---	None
WmD:									
Wynott	C	Jan-Dec	>6.0	---	---	---	None	---	None
Mecklenburg	C	Jan-Dec	>6.0	---	---	---	None	---	None
Wilkes	C	Jan-Dec	>6.0	---	---	---	None	---	None

Table 17.—Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern or that data were not estimated.)

Map symbol and soil name	Restrictive layer			Risk of corrosion	
	Kind	Depth to top	Hardness	Uncoated steel	Concrete
		In	In		In
AaA:					
Altavista	---	---	---	Moderate	Moderate
AaB:					
Altavista	---	---	---	Moderate	Moderate
AaC:					
Altavista	---	---	---	Moderate	Moderate
AgB:					
Appling	---	---	---	Moderate	Moderate
Hard Labor	---	---	---	High	High
AgC:					
Appling	---	---	---	Moderate	Moderate
Hard Labor	---	---	---	High	High
ArE:					
Ashlar	Paralithic bedrock	20-24	Strongly cemented	Low	High
	Lithic bedrock	24-24	Indurated		
Rion	---	---	---	Moderate	High
BaA:					
Buncombe	---	---	---	Low	Moderate
CaA:					
Cartecay	---	---	---	Low	Moderate
Toccoa	---	---	---	Low	Moderate
CeB2:					
Cecil	---	---	---	High	High
CeC2:					
Cecil	---	---	---	High	High
CpA:					
Congaree	---	---	---	Moderate	Moderate
CrA:					
Congaree	---	---	---	Moderate	Moderate
Cartecay	---	---	---	Low	Moderate
EnC:					
Enon	---	---	---	High	Moderate
Wynott	Paralithic bedrock	20-42	Weakly cemented	High	Moderate
	Lithic bedrock	42-42	Strongly cemented		

Table 17.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Risk of corrosion	
	Kind	Depth to top	Hardness	Uncoated steel	Concrete
		In	In		In
GaC:					
Grover	---	---	---	Moderate	Moderate
Mountain Park	Paralithic bedrock	20-40	Moderately cemented	Moderate	Moderate
GaE:					
Grover	---	---	---	Moderate	Moderate
Mountain Park	Paralithic bedrock	20-40	Moderately cemented	Moderate	Moderate
GaF:					
Grover	---	---	---	Moderate	Moderate
Mountain Park	Paralithic bedrock	20-40	Moderately cemented	Moderate	Moderate
HbB:					
Hiwassee	---	---	---	Moderate	Moderate
HbC:					
Hiwassee	---	---	---	Moderate	Moderate
LaD2:					
Lloyd	---	---	---	Moderate	Moderate
Gwinnett	Paralithic bedrock	41-60	Moderately cemented	High	Moderate
MdB2:					
Madison	---	---	---	High	Moderate
Bethlehem	Paralithic bedrock	20-40	Moderately cemented	Moderate	High
MdC2:					
Madison	---	---	---	High	Moderate
Bethlehem	Paralithic bedrock	20-40	Moderately cemented	Moderate	High
PaB2:					
Pacolet	---	---	---	High	High
PaD2:					
Pacolet	---	---	---	High	High
PaE2:					
Pacolet	---	---	---	High	High
PgC2:					
Pacolet	---	---	---	High	High
Saw	Lithic bedrock	22-22	Indurated	High	High
ReD:					
Rion	---	---	---	Moderate	High
ReE:					
Rion	---	---	---	Moderate	High

Table 17.—Soil Features—Continued

Map symbol and soil name	Restrictive layer: Kind	Restrictive layer: Depth to top	Restrictive layer: Hardness	Risk of corrosion: Uncoated steel	Risk of corrosion: Concrete
		In	In		In
RoE:					
Rion	---	---	---	Moderate	High
Louisburg	Paralithic bedrock	65-80	Moderately cemented	Low	Moderate
RoF:					
Rion	---	---	---	Moderate	High
Louisburg	Paralithic bedrock	65-80	Moderately cemented	Low	Moderate
UcC:					
Urban land	---	---	---	---	---
Altavista	---	---	---	Moderate	Moderate
UdC:					
Urban land	---	---	---	---	---
Appling	---	---	---	Moderate	Moderate
Hard Labor	---	---	---	High	High
UeE:					
Urban land	---	---	---	---	---
Ashlar	Paralithic bedrock	20-24	Strongly cemented	Low	High
	Lithic bedrock	24-24	Indurated		
Rion	---	---	---	Moderate	High
UfC2:					
Urban land	---	---	---	---	---
Cecil	---	---	---	High	High
UgC:					
Urban land	---	---	---	---	---
Grover	---	---	---	Moderate	Moderate
Mountain Park	Paralithic bedrock	20-40	Moderately cemented	Moderate	Moderate
UgE:					
Urban land	---	---	---	---	---
Grover	---	---	---	Moderate	Moderate
Mountain Park	Paralithic bedrock	20-40	Moderately cemented	Moderate	Moderate
UmC2:					
Urban land	---	---	---	---	---
Madison	---	---	---	High	Moderate
Bethlehem	Paralithic bedrock	20-40	Moderately cemented	Moderate	High

Table 17.—Soil Features—Continued

Map symbol and soil name	Restrictive layer			Risk of corrosion	
	Kind	Depth to top	Hardness	Uncoated steel	Concrete
		In	In		In
UpC2:					
Urban land	---	---	---	---	---
Pacolet	---	---	---	High	High
Saw	Lithic bedrock	22-22	Indurated	High	High
UrE:					
Urban land	---	---	---	---	---
Rion	---	---	---	Moderate	High
UsE:					
Urban land	---	---	---	---	---
Rion	---	---	---	Moderate	High
Louisburg	Paralithic bedrock	65-80	Moderately cemented	Low	Moderate
UwD:					
Urban land	---	---	---	---	---
Wynott	Paralithic bedrock	20-40	Weakly cemented	High	Moderate
	Lithic bedrock	42-42	Strongly cemented		
Mecklenburg	---	---	---	High	Moderate
Wilkes	Paralithic bedrock	14-20	Moderately cemented	Moderate	Moderate
	Lithic bedrock	40-60	Indurated		
WbA:					
Wehadkee	---	---	---	High	Moderate
Cartecay	---	---	---	Low	Moderate
WcB:					
Wickham	---	---	---	Moderate	High
WmD:					
Wynott	Paralithic bedrock	20-42	Weakly cemented	High	Moderate
	Lithic bedrock	42-42	Strongly cemented		
Mecklenburg	---	---	---	High	Moderate
Wilkes	Paralithic bedrock	14-20	Moderately cemented	Moderate	Moderate
	Lithic bedrock	40-60	Indurated		

Table 18.—Taxonomic Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series.)

Soil name	Family or higher taxonomic class
Altavista	Fine-loamy, mixed, semiactive, thermic Aquic Hapludults
Appling	Fine, kaolinitic, thermic Typic Kanhapludults
Ashlar	Coarse-loamy, mixed, semiactive, thermic Typic Dystrudepts
Bethlehem	Fine, kaolinitic, thermic Typic Kanhapludults
Buncombe	Mixed, thermic Typic Udipsamments
Cartecay	Coarse-loamy, mixed, semiactive, nonacid, thermic Aquic Udifluvents
Cecil	Fine, kaolinitic, thermic Typic Kanhapludults
Congaree	Fine-loamy, mixed, active, nonacid, thermic Oxyaquic Udifluvents
Enon	Fine, mixed, active, thermic Ultic Hapludalfs
Grover	Fine-loamy, micaceous, thermic Typic Hapludults
Gwinnett	Fine, kaolinitic, thermic Rhodic Kanhapludults
Hard Labor	Fine, kaolinitic, thermic Oxyaquic Kanhapludults
Hiwassee	Fine, kaolinitic, thermic Rhodic Kanhapludults
Lloyd	Fine, kaolinitic, thermic Rhodic Kanhapludults
Louisburg	Coarse-loamy, mixed, semiactive, thermic Typic Hapludults
Madison	Fine, kaolinitic, thermic Typic Kanhapludults
Mecklenburg	Fine, mixed, active, thermic Ultic Hapludalfs
Mountain Park	Fine-loamy, micaceous, thermic Typic Hapludults
Pacolet	Fine, kaolinitic, thermic Typic Kanhapludults
Rion	Fine-loamy, mixed, semiactive, thermic Typic Hapludults
Saw	Fine, kaolinitic, thermic Typic Kanhapludults
Toccoa	Coarse-loamy, mixed, active, nonacid, thermic Typic Udifluvents
Wehadkee	Fine-loamy, mixed, active, nonacid, thermic Fluvaquentic Endoaquepts
Wickham	Fine-loamy, mixed, semiactive, thermic Typic Hapludults
Wilkes	Loamy, mixed, active, thermic, shallow Typic Hapludalfs
Wynott	Fine, mixed, active, thermic Typic Hapludalfs

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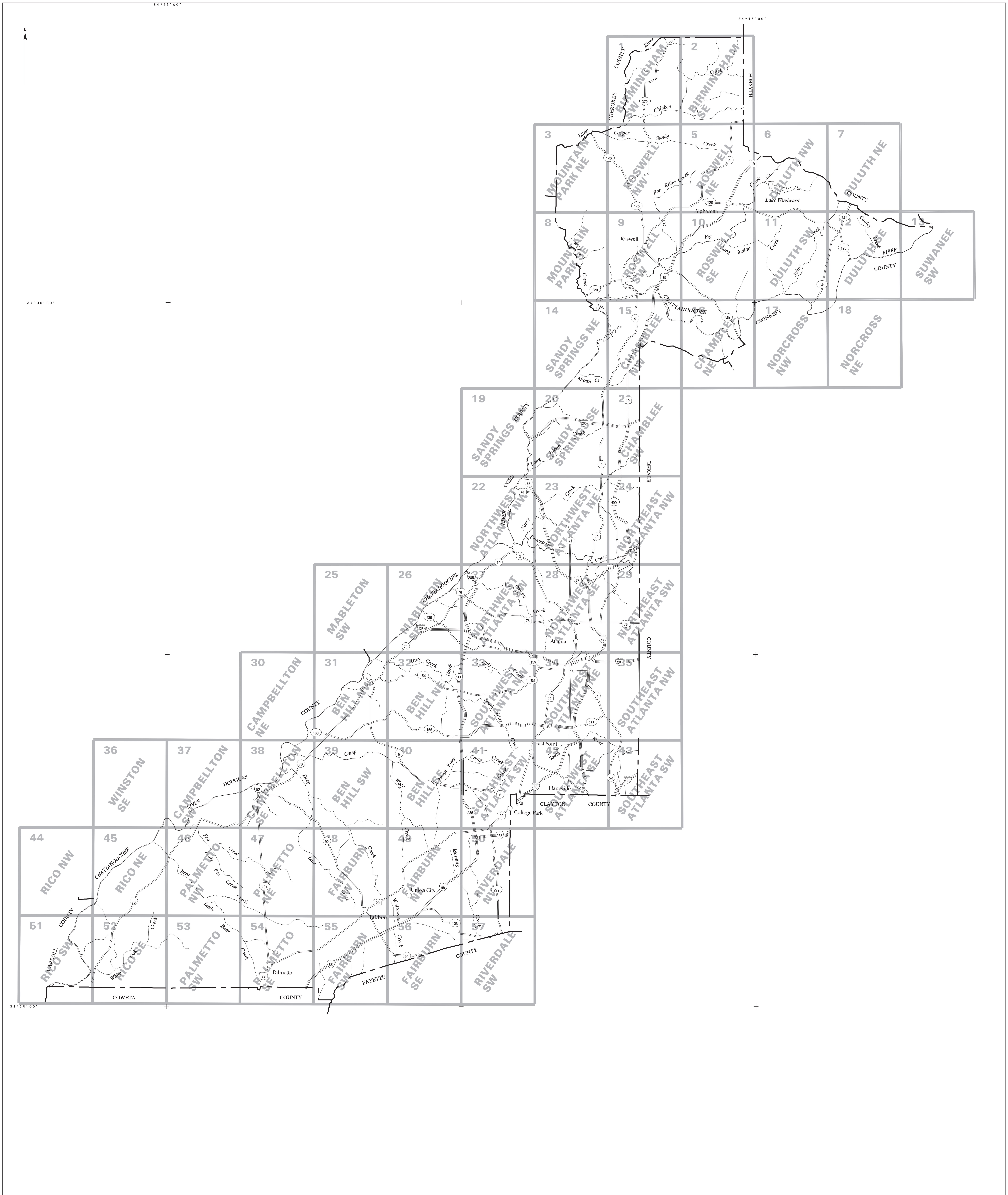


INDEX TO MAP SHEETS
FULTON COUNTY, GEORGIA

MILES
KILOMETERS
SCALE = 1:150000

SOIL LEGEND

Map unit symbols and names are alphabetical. Map symbols are letters or a combination of letters and numbers. The first letter is capitalized and is the first letter of the series (or miscellaneous area) name. The second letter is lower case. The third letter, if used, is capitalized and denotes the slope phase. Soils without a second letter or a slope letter are miscellaneous areas. The fourth character, if used, is a number that denotes erosion class.

SYMBOL	NAME
AaA	Altavista sandy loam, 0 to 2 percent slopes, rarely flooded
AaB	Altavista sandy loam, 2 to 6 percent slopes
AaC	Altavista sandy loam, 6 to 10 percent slopes
AgB	Appling-Hard Labor complex, 2 to 6 percent slopes
AgC	Appling-Hard Labor complex, 6 to 10 percent slopes
ArE	Ashlar-Rion complex, 6 to 25 percent slopes, stony
BaA	Buncombe loamy sand, 0 to 3 percent slopes, occasionally flooded
CaA	Cartecay-Toccoa complex, 0 to 2 percent slopes, occasionally flooded
CeB2	Cecil sandy loam, 2 to 6 percent slopes, moderately eroded
CeC2	Cecil sandy loam, 6 to 10 percent slopes, moderately eroded
CpA	Congaree sandy loam, 0 to 2 percent slopes, occasionally flooded
CrA	Congaree-Cartecay complex, 0 to 2 percent slopes, occasionally flooded
DAM	Dam
EnC	Enon-Wynott complex, 6 to 10 percent slopes, bouldery
GaC	Grover-Mountain Park complex, 2 to 10 percent slopes, stony
GaE	Grover-Mountain Park complex, 10 to 20 percent slopes, stony
GaF	Grover-Mountain Park complex, 20 to 60 percent slopes, stony
HbB	Hiwassee sandy loam, 2 to 6 percent slopes
HbC	Hiwassee sandy loam, 6 to 10 percent slopes
LaD2	Lloyd-Gwinnett complex, 6 to 15 percent slopes, moderately eroded
MdB2	Madison-Bethlehem complex, 2 to 6 percent slopes, moderately eroded
MdC2	Madison-Bethlehem complex, 6 to 10 percent slopes, moderately eroded
PaB2	Pacolet sandy loam, 2 to 6 percent slopes, moderately eroded
PaD2	Pacolet sandy loam, 10 to 15 percent slopes, moderately eroded
PaE2	Pacolet sandy loam, 15 to 25 percent slopes, moderately eroded
PgC2	Pacolet-Saw complex, 6 to 10 percent slopes, moderately eroded, bouldery
Pt	Pits, quarry
ReD	Rion sandy loam, 10 to 15 percent slopes
ReE	Rion sandy loam, 15 to 25 percent slopes
RoE	Rion-Louisburg complex, 10 to 20 percent slopes, bouldery
RoF	Rion-Louisburg complex, 20 to 35 percent slopes, bouldery
Ua	Udorthents, 0 to 10 percent slopes
Ub	Urban land
UcC	Urban land-Altavista complex, 2 to 10 percent slopes
UdC	Urban land-Appling-Hard Labor complex, 2 to 10 percent slopes
UeE	Urban land-Ashlar-Rion complex, 10 to 25 percent slopes, stony
UfC2	Urban land-Cecil complex, 2 to 10 percent slopes, moderately eroded
UgC	Urban land-Grover-Mountain Park complex, 2 to 10 percent slopes, stony
UgE	Urban land-Grover-Mountain Park complex, 10 to 25 percent slopes, stony
UmC2	Urban land-Madison-Bethlehem complex, 2 to 10 percent slopes, moderately eroded
UpC2	Urban land-Pacolet-Saw complex, 2 to 10 percent slopes, moderately eroded, bouldery
UrE	Urban land-Rion complex, 10 to 25 percent slopes
UsE	Urban land-Rion-Louisburg complex, 10 to 25 percent slopes, bouldery
UwD	Urban land-Wynott-Mecklenburg-Wilkes complex, 6 to 15 percent slopes
W	Water
WbA	Wehadkee-Cartecay complex, 0 to 2 percent slopes, occasionally flooded
WcB	Wickham sandy loam, 2 to 6 percent slopes
WmD	Wynott-Mecklenburg-Wilkes complex, 6 to 15 percent slopes

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

County or parish

Field sheet matchline & neatline

Reservation (national forest or park, state forest or park)

TRANSPORTATION

ROAD EMBLEM & DESIGNATIONS

Interstate 173 79 345

Federal 287 410 224

State 52 52 347

LOCATED OBJECTS

Cemetery St. Johns Cemetery

HYDROGRAPHIC FEATURES

STREAMS

Unclassified stream

Drainage end (indicates direction of flow)

SOIL SURVEY FEATURES

SOIL DELINEATIONS AND SYMBOLS AaA CpA

MISCELLANEOUS SURFACE FEATURES

Borrow pit

Gravelly spot

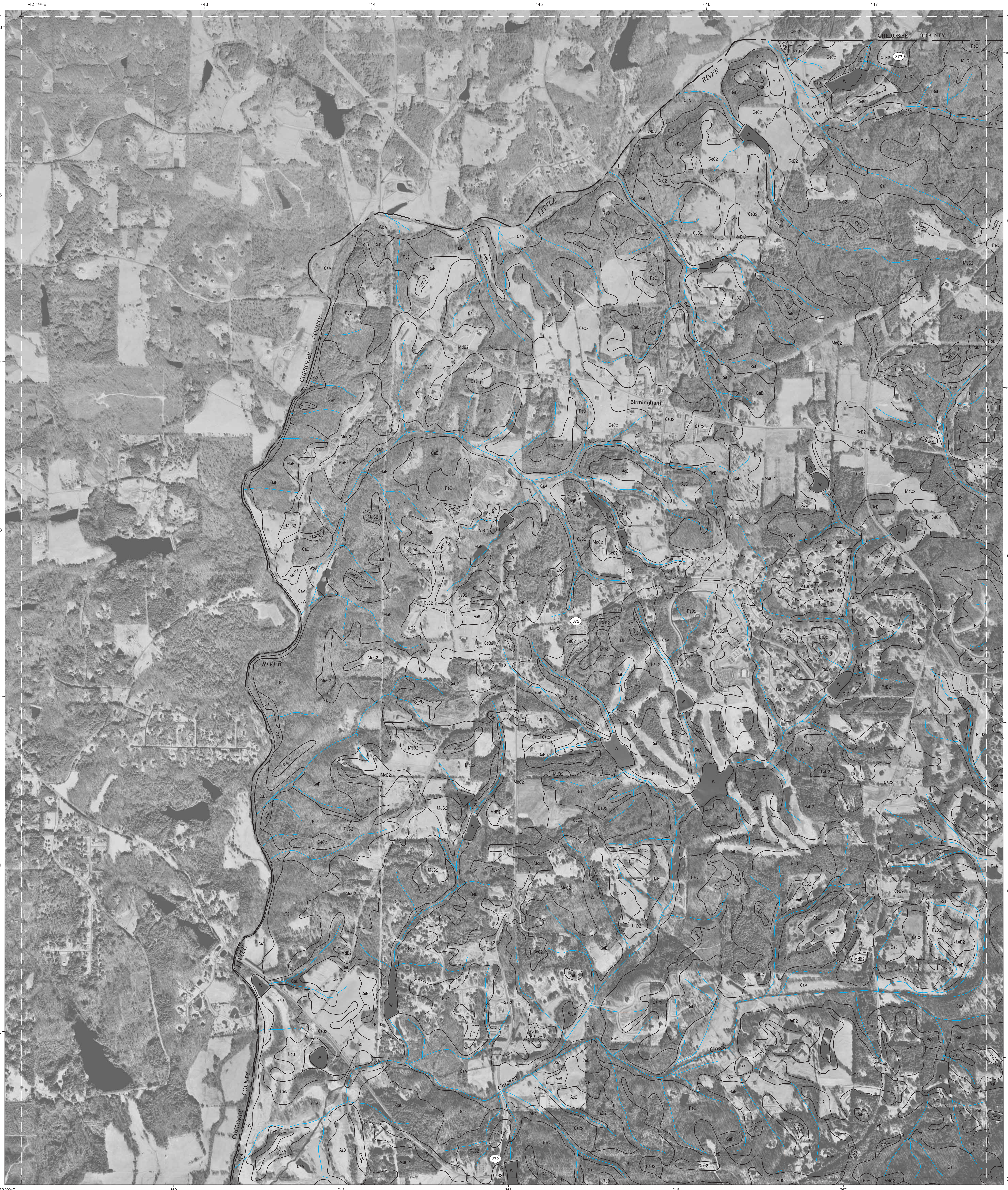
Rock outcrop

Sandy spot

Stony spot

Wet spot

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE



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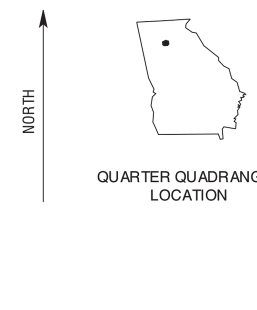

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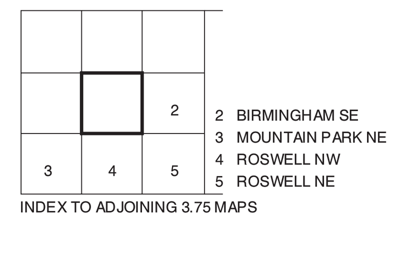
MILES

FEET

KILOMETERS

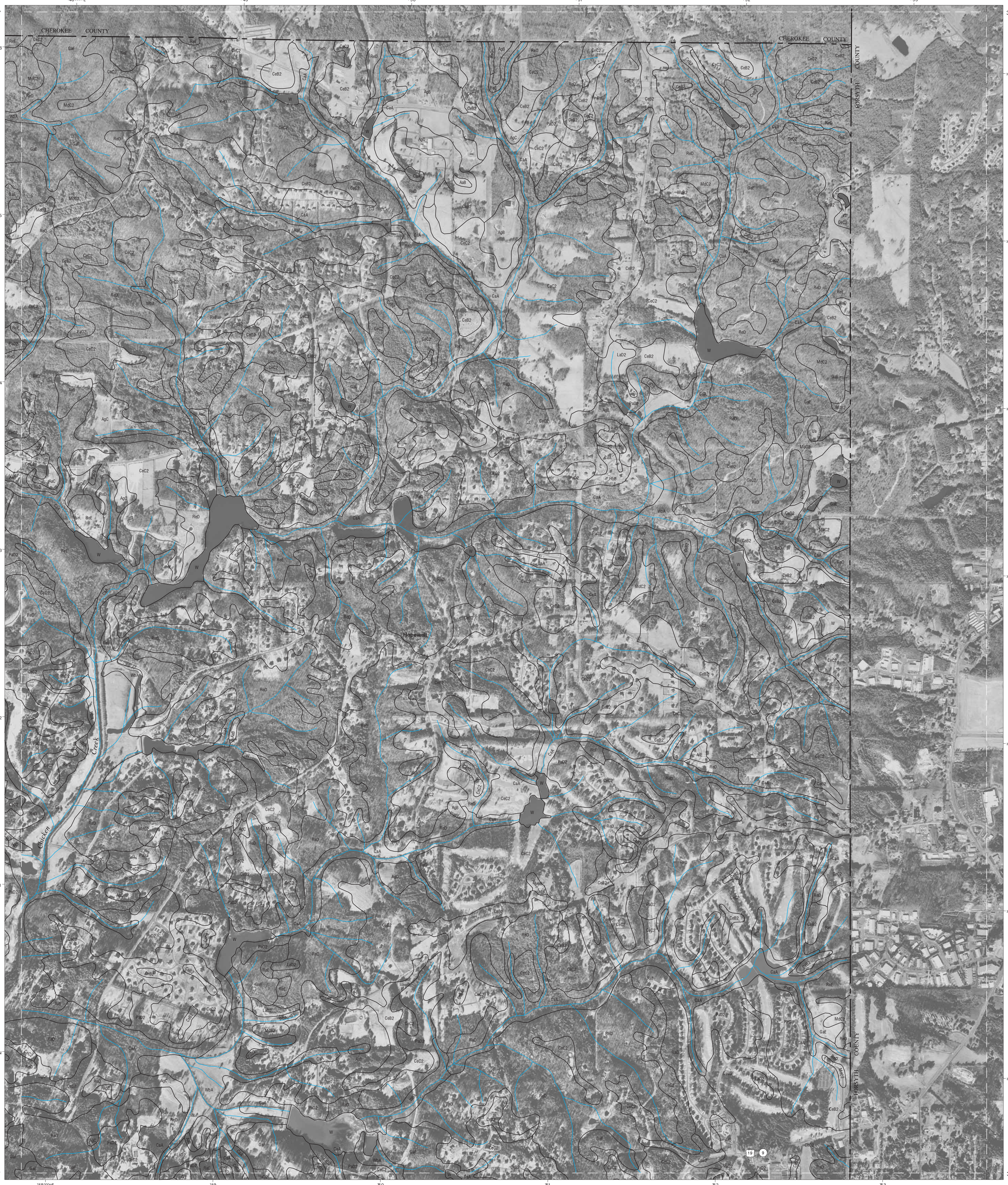


BIRMINGHAM SW, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 1 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
BIRMINGHAM SE QUADRANGLE
SHEET NUMBER 2 OF 57



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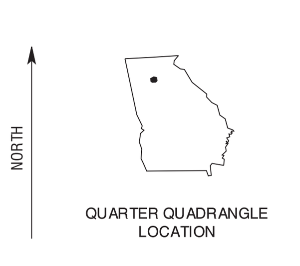

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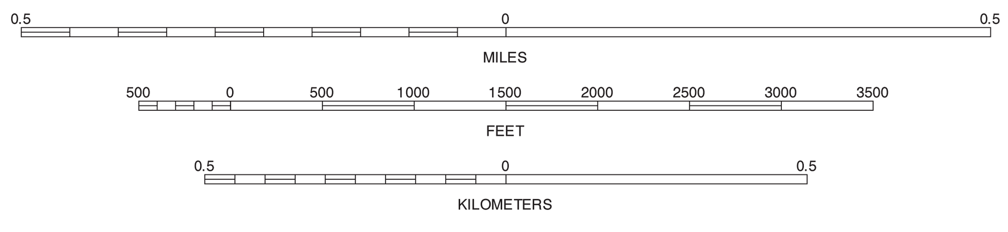

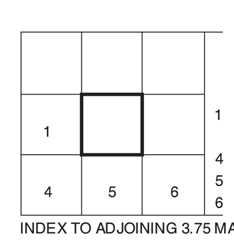

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BIRMINGHAM SE, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 2 OF 57

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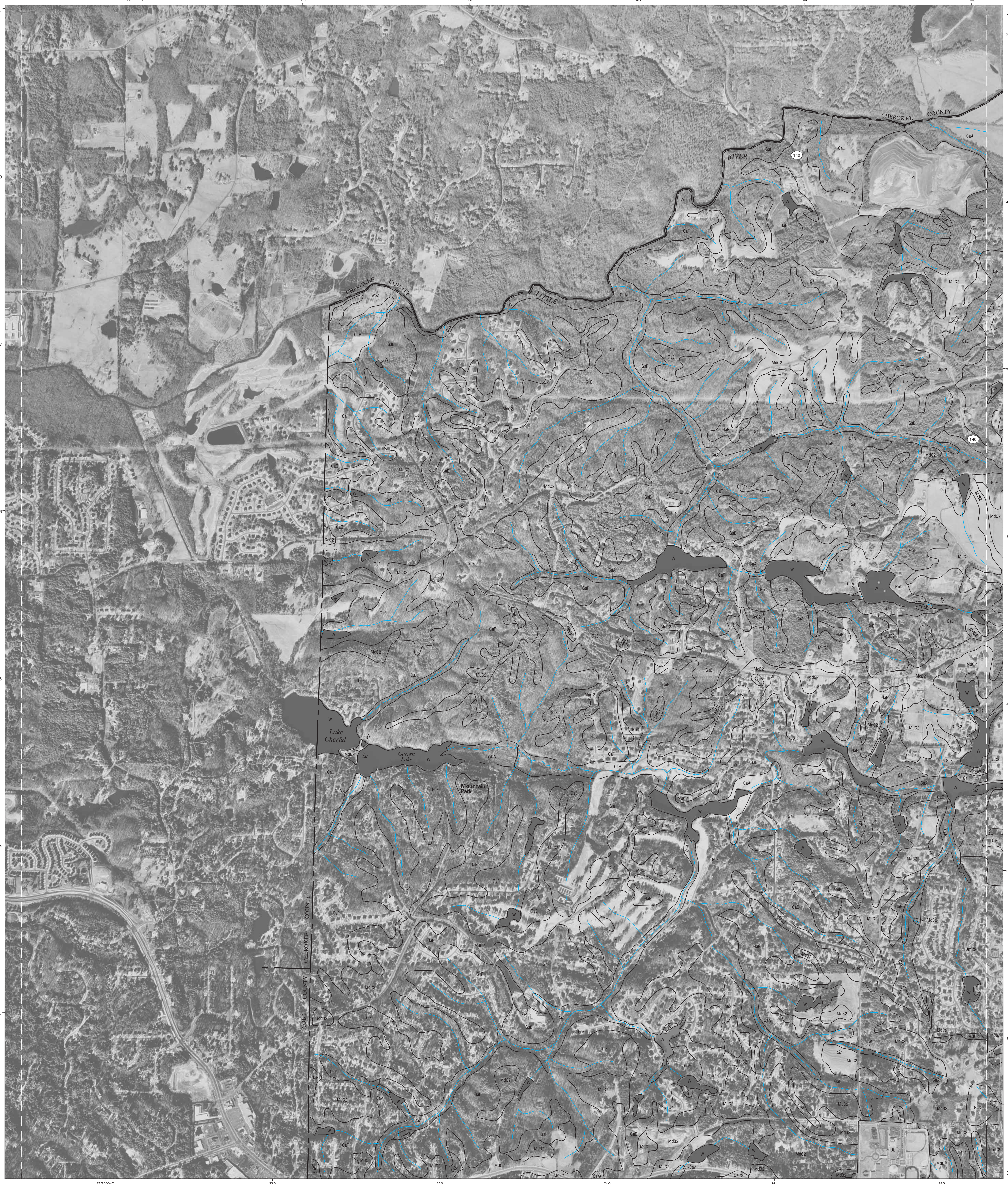
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
MOUNTAIN PARK NE QUADRANGLE
SHEET NUMBER 3 OF 57

Joins sheet 1, Birmingham SW

84° 26′15″ 34° 07′30″ 84° 22′30″



Joins sheet 4, Roswell NW

34° 03′45″ 84° 26′15″ 84° 22′30″

Joins sheet 8, Mountain Park SE

Joins sheet 9, Roswell SW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

1 BIRMINGHAM SW
4 ROSWELL NW
8 MOUNTAIN PARK SE
9 ROSWELL SW

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MOUNTAIN PARK NE, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 3 OF 57

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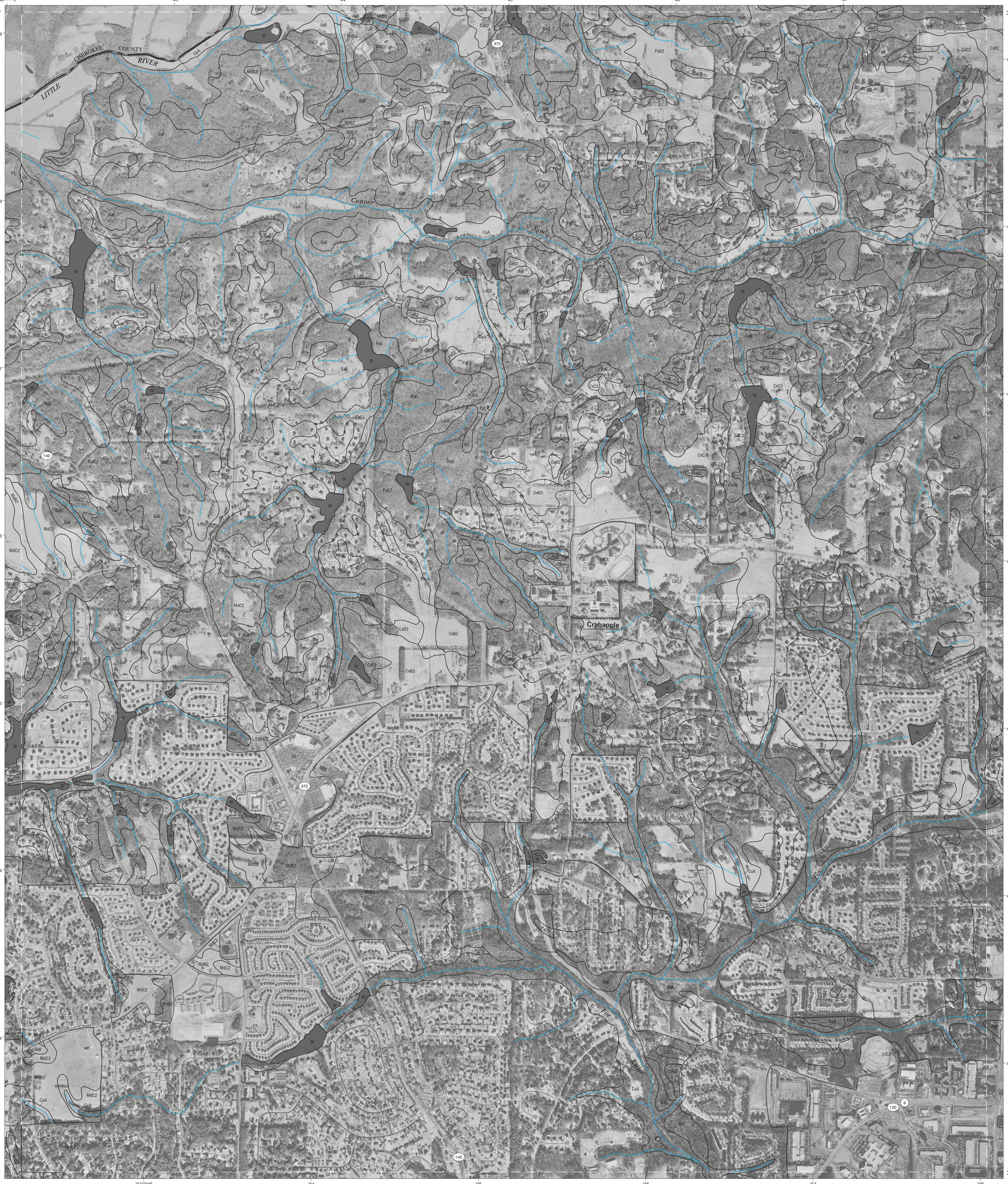
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
ROSWELL NW QUADRANGLE
SHEET NUMBER 4 OF 57



SCALE 1:12000

MILES · FEET · KILOMETERS

NORTH

QUARTER QUADRANGLE LOCATION

	1	2
3		5
8	9	10

1 BIRMINGHAM SW
2 BIRMINGHAM SE
3 MOUNTAIN PARK NE
5 ROSWELL NE
8 MOUNTAIN PARK SE
9 ROSWELL SW
10 ROSWELL SE

INDEX TO ADJOINING 3.75 MAPS

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ROSWELL NW, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 4 OF 57

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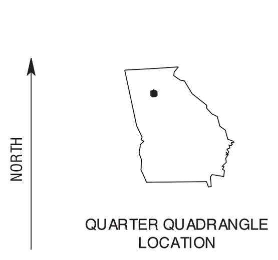

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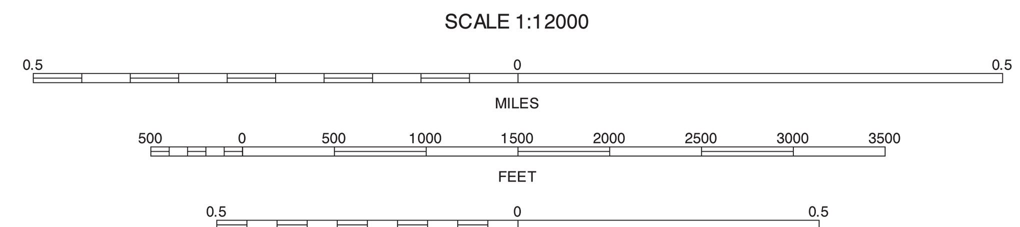

1	2		1 BIRMINGHAM SW 2 BIRMINGHAM SE
4		6	4 ROSWELL NW 6 DULUTH NW
9	10	11	9 ROSWELL SW 10 ROSWELL SE 11 DULUTH SW

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ROSWELL NE, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 5 OF 57

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UNITED STATES
DEPARTMENT OF AGRICULTURE
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FULTON COUNTY, GEORGIA
DULUTH NW QUADRANGLE
SHEET NUMBER 6 OF 57

Joins sheet 2, Birmingham SE

Joins sheet 11, Duluth SW

Joins sheet 10, Roswell SE

Joins sheet 12, Duluth SE

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QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

2 BIRMINGHAM SE
5 ROSWELL NE
7 DULUTH NE
10 ROSWELL SE
11 DULUTH SW
12 DULUTH SE

INDEX TO ADJOINING 3.75 MAPS

DULUTH NW, GEORGIA
3.75 MINUTE SERIES
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UNITED STATES
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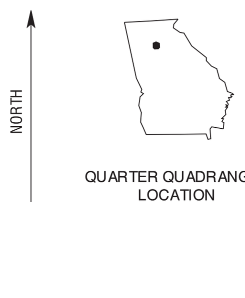

QUARTER QUADRANGLE LOCATION

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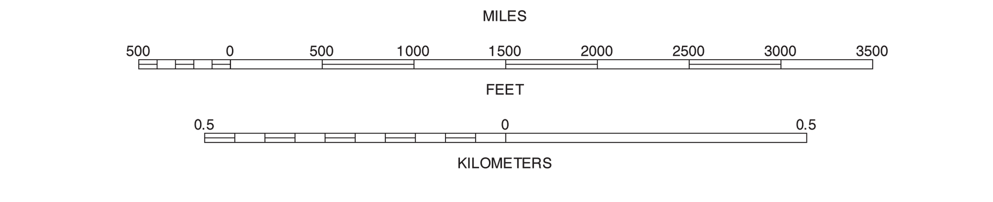

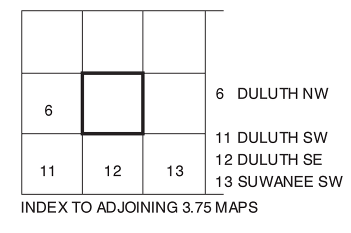

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DULUTH NE, GEORGIA
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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

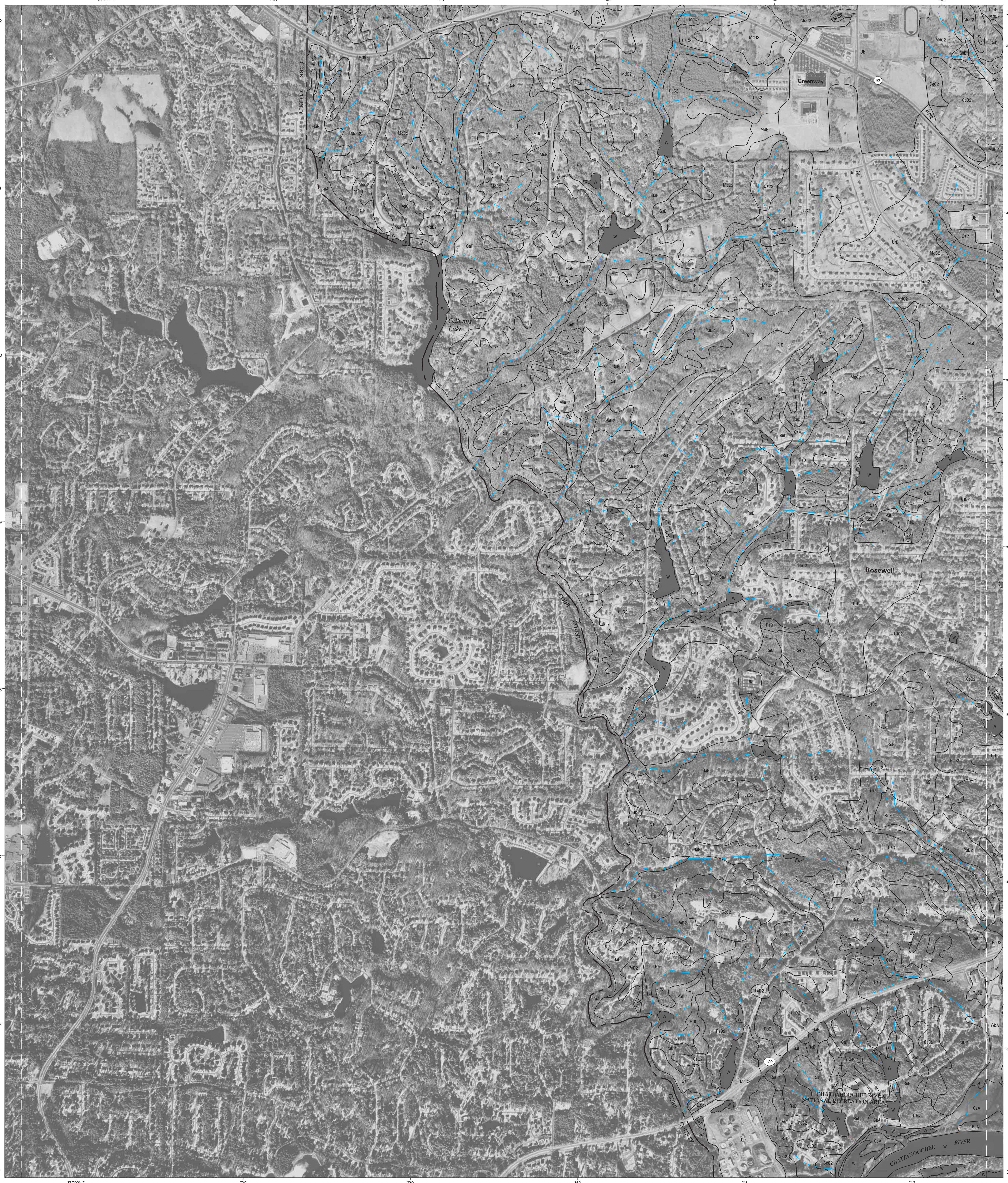
FULTON COUNTY, GEORGIA
MOUNTAIN PARK SE QUADRANGLE
SHEET NUMBER 8 OF 57

Joins sheet 3, Mountain Park NE

Joins sheet 4, Roswell NW

84° 26′15″ 34° 03′45″

84° 22′30″ 34° 03′45″



34° 00′00″ 84° 26′15″

34° 00′00″ 84° 22′30″

Joins sheet 9, Roswell SW

Joins sheet 14, Sandy Springs NE

Joins sheet 15, Chamblee NW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

3 MOUNTAIN PARK NE
4 ROSWELL NW
9 ROSWELL SW
14 SANDY SPRINGS NE
15 CHAMBLEE NW

INDEX TO ADJOINING 3.75 MAPS

MOUNTAIN PARK SE, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 8 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 3, Mountain Park NE

Joins sheet 4, Roswell NW

Joins sheet 5, Roswell NE

84° 22′30″

84°18′45″

34° 03′45″

Joins sheet 8, Mountain Park SE

Joins sheet 10, Roswell SE

34° 00′00″

84° 22′30″

84°18′45″

Joins sheet 14, Sandy Springs NE

Joins sheet 15, Chamblee NW

Joins sheet 16, Chamblee NE

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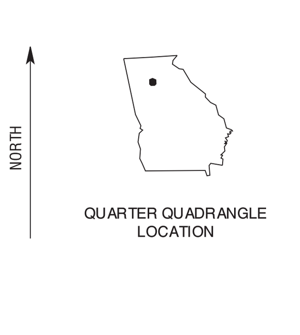

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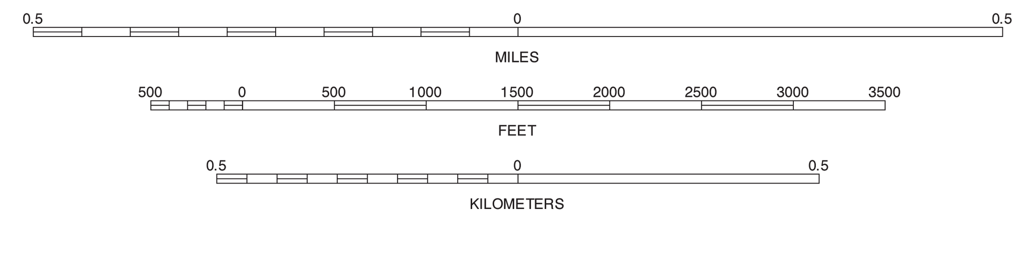

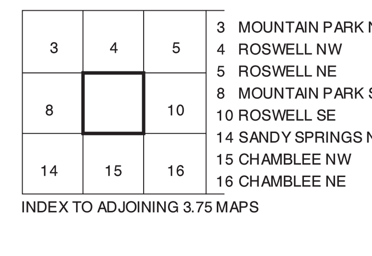

INDEX TO ADJOINING 3.75 MAPS

ROSWELL SW, GEORGIA

3.75 MINUTE SERIES
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DEPARTMENT OF AGRICULTURE
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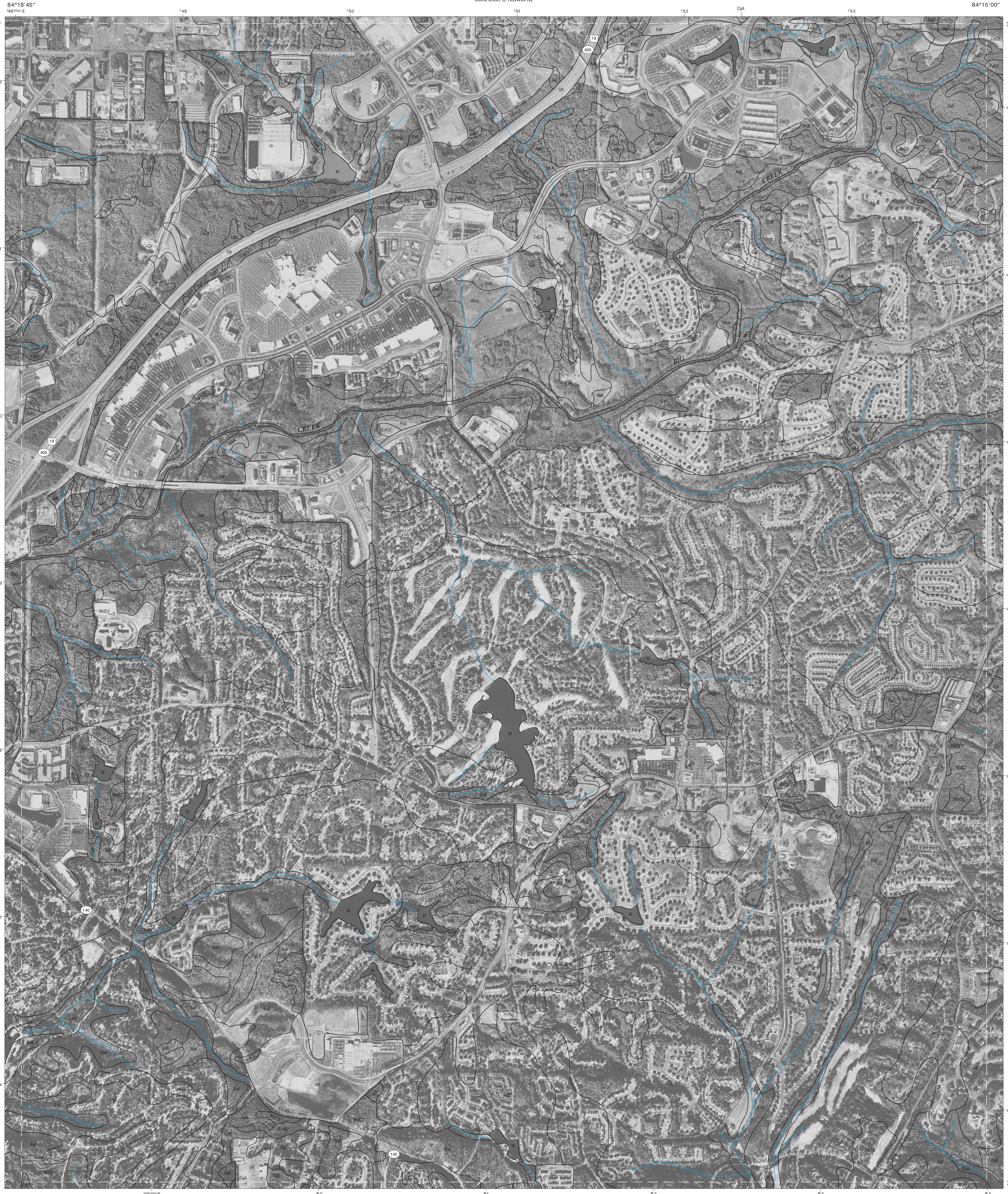
FULTON COUNTY, GEORGIA
ROSWELL SE QUADRANGLE
SHEET NUMBER 10 OF 57

Joins sheet 4, Roswell NW

Joins sheet 5, Roswell NE

Joins sheet 6, Duluth NW



Joins sheet 9, Roswell SW

Joins sheet 11, Duluth SW

Joins sheet 15, Chamblee NW

Joins sheet 16, Chamblee NE

Joins sheet 17, Norcross NW

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NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 — 0 — 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 — 0 — 0.5

4	5	6
9		11
15	16	17

4 ROSWELL NW
5 ROSWELL NE
6 DULUTH NW
9 ROSWELL SW
11 DULUTH SW
15 CHAMBLEE NW
16 CHAMBLEE NE
17 NORCROSS NW

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ROSWELL SE, GEORGIA

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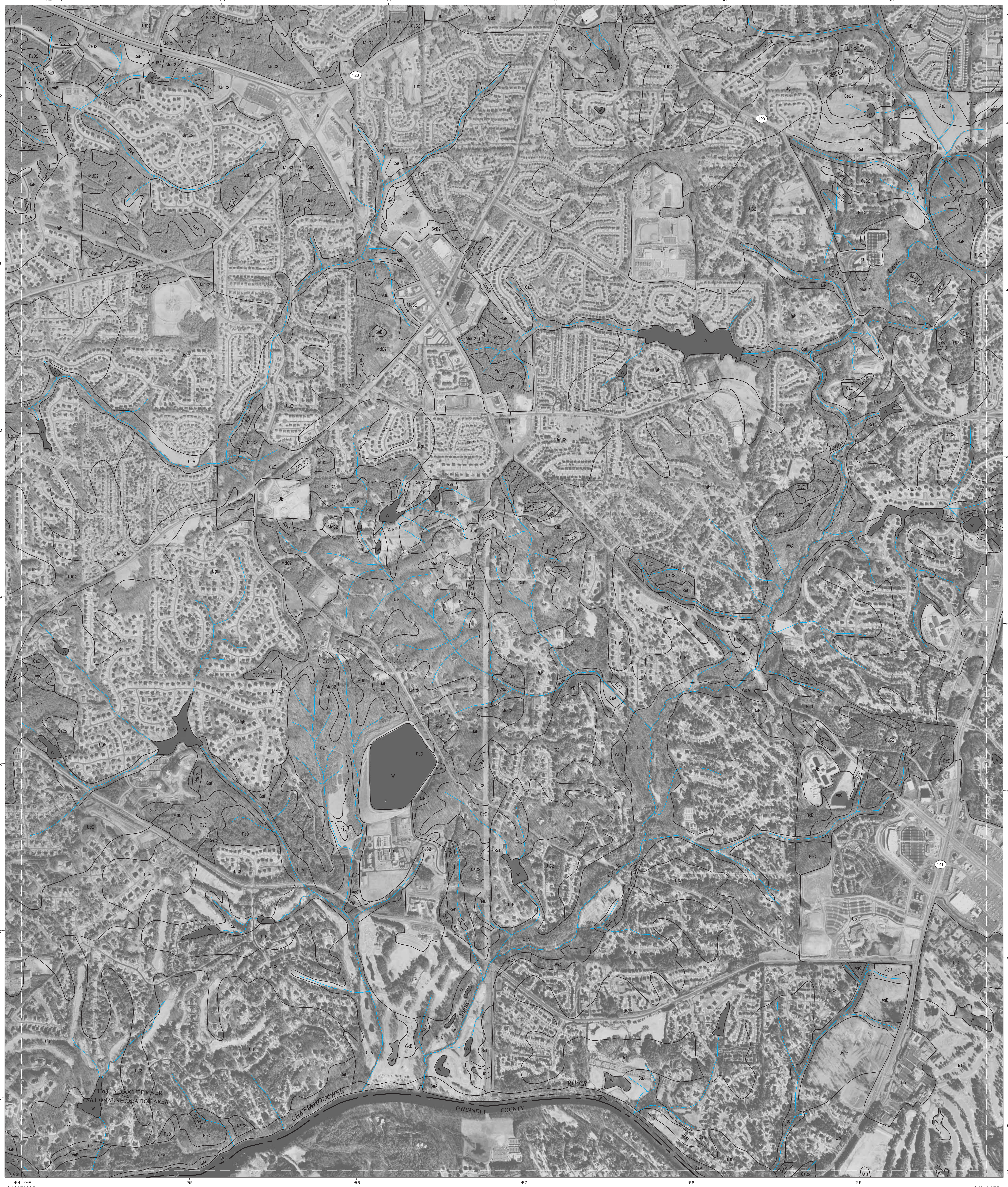
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
DULUTH SW QUADRANGLE
SHEET NUMBER 11 OF 57



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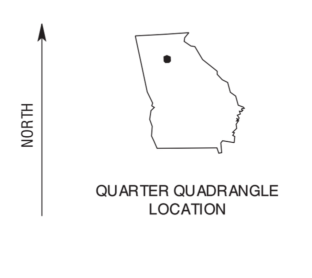

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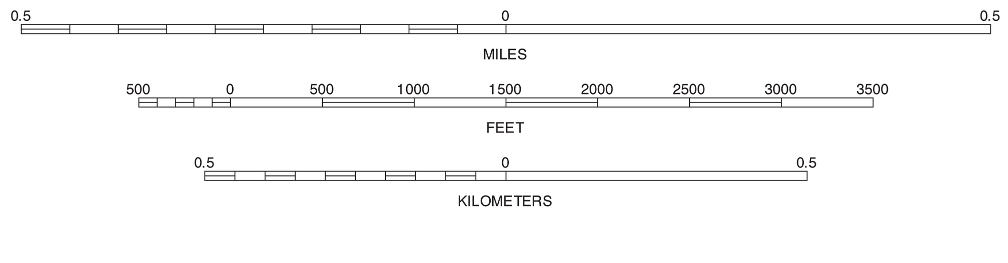

5	6	7	5 ROSWELL NE 6 DULUTH NW 7 DULUTH NE
10		12	10 ROSWELL SE 12 DULUTH SE 16 CHAMBLEE NE
16	17	18	17 NORCROSS NW 18 NORCROSS NE

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DULUTH SW, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 11 OF 57

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UNITED STATES
DEPARTMENT OF AGRICULTURE
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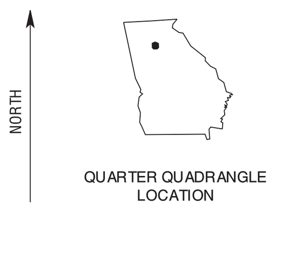
FULTON COUNTY, GEORGIA
DULUTH SE QUADRANGLE
SHEET NUMBER 12 OF 57

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1999-2000 aerial photography. Hydrography information was acquired from the Natural Resources Conservation Service. Hydrography layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



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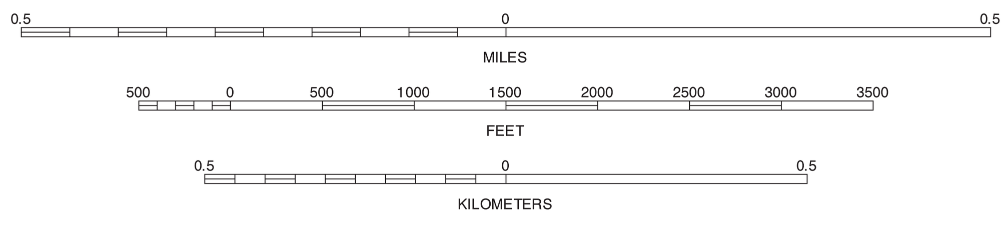

6	7	
11		13
17	18	

6 DULUTH NW
7 DULUTH NE
11 DULUTH SW
13 SUWANEE SW
17 NORCROSS NW
18 NORCROSS NE

INDEX TO ADJOINING 3.75 MAPS

DULUTH SE, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 12 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 7, Duluth NE

84° 07′30″

34° 03′45″

Joins sheet 12, Duluth SE

34° 00′00″

84° 07′30″

84° 03′45″

Joins sheet 18, Norcross NE

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 0 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 0 0.5

7 DULUTH NE
12 DULUTH SE
18 NORCROSS NE

INDEX TO ADJOINING 3.75 MAPS

SUWANEE SW, GEORGIA

3.75 MINUTE SERIES
SHEET NUMBER 13 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 9, Roswell SW

Joins sheet 8, Mountain Park SE

84° 26′15″ 34° 00′00″ 84° 22′30″

Joins sheet 15, Chamblee NW

33° 56′15″ 84° 26′15″ 84° 22′30″

Joins sheet 19, Sandy Springs SW

Joins sheet 20, Sandy Springs SE

Joins sheet 21, Chamblee SW

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

8 MOUNTAIN PARK SE
9 ROSWELL SW
15 CHAMBLEE NW
19 SANDY SPRINGS SW
20 SANDY SPRINGS SE
21 CHAMBLEE SW

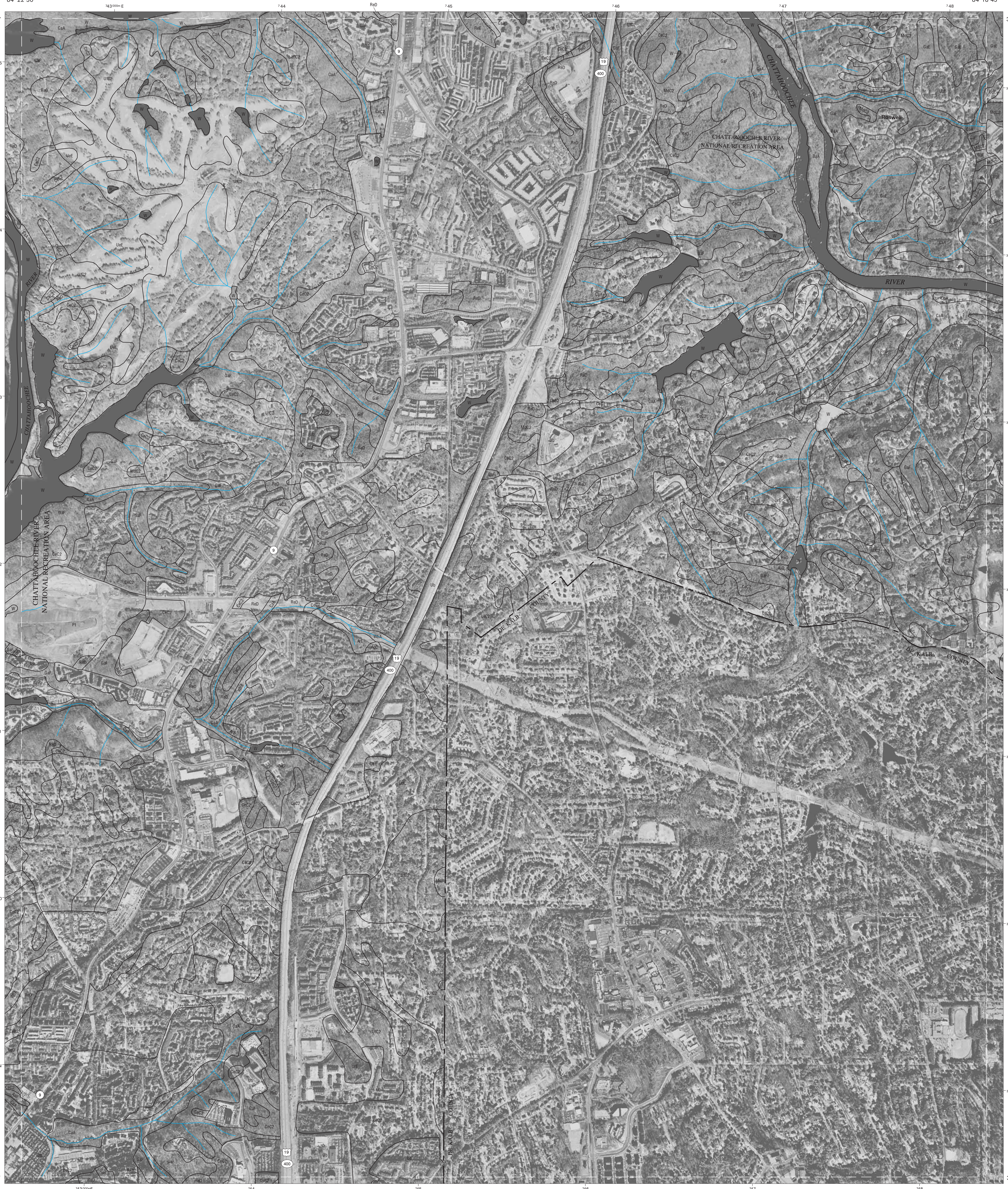
SANDY SPRINGS NE, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 14 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 8, Mountain Park SE

Joins sheet 9, Roswell SW

Joins sheet 10, Roswell SE



Joins sheet 14, Sandy Springs NE

Joins sheet 16, Chamblee NE

Joins sheet 20, Sandy Springs SE

Joins sheet 21, Chamblee SW

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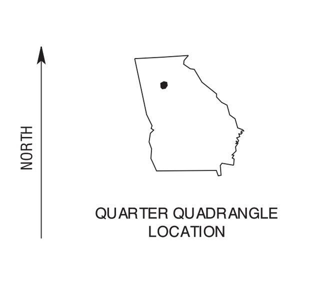
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



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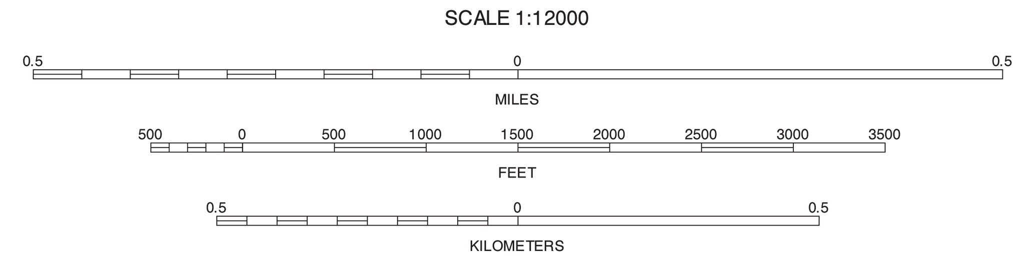


8	9	10
14		16
20	21	

8 MOUNTAIN PARK SE
9 ROSWELL SW
10 ROSWELL SE
14 SANDY SPRINGS NE
16 CHAMBLEE NE
20 SANDY SPRINGS SE
21 CHAMBLEE SW

INDEX TO ADJOINING 3.75 MAPS

CHAMBLEE NW, GEORGIA

3.75 MINUTE SERIES
SHEET NUMBER 15 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

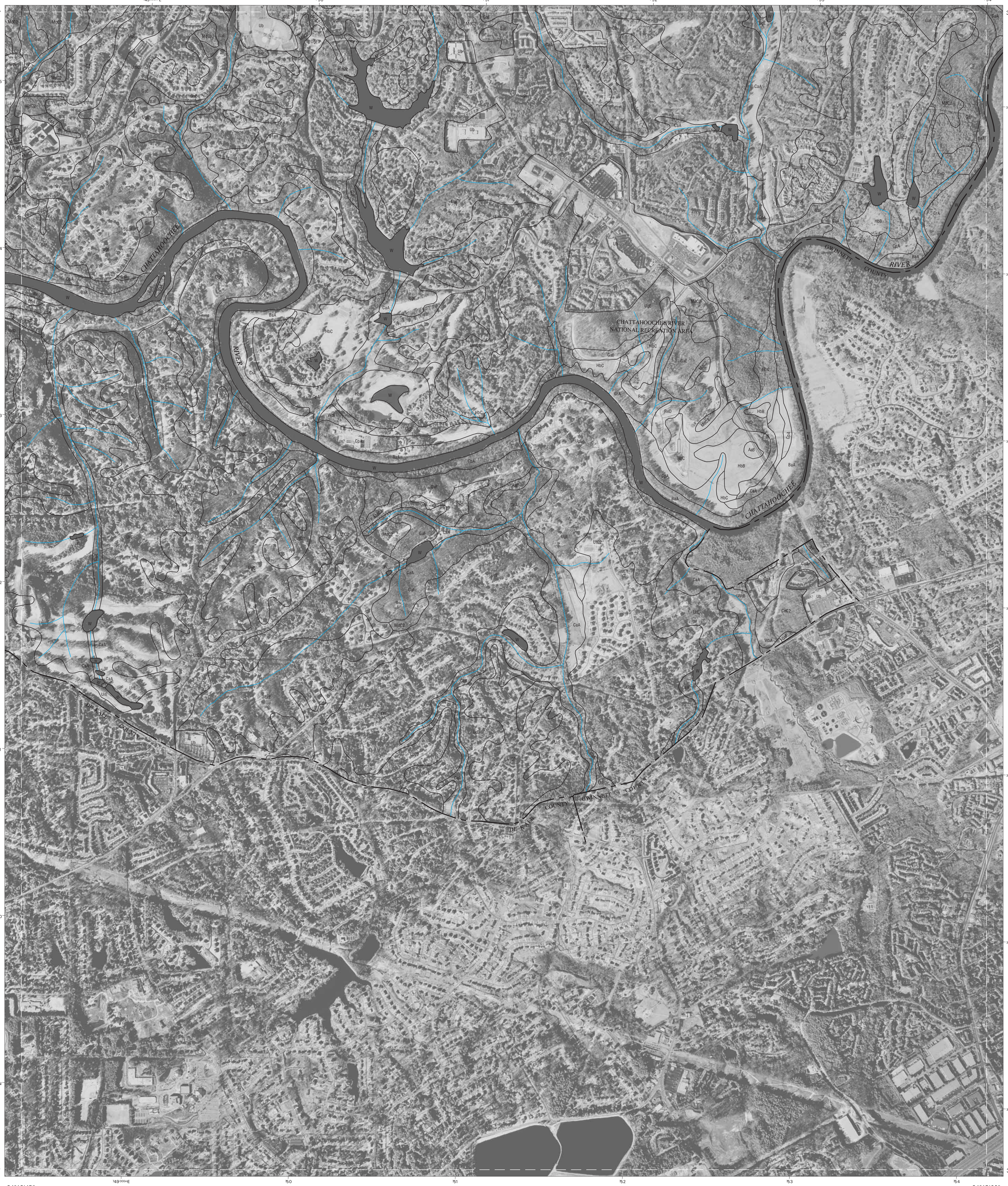
Joins sheet 9, Roswell SW

Joins sheet 10, Roswell SE

Joins sheet 11, Duluth SW

84°18′45″ 34°00′00″

84°15′00″ 34°00′00″



Joins sheet 15, Chamblee NW

Joins sheet 17, Norcross NW

33°56′15″ 84°18′45″

33°56′15″ 84°15′00″

Joins sheet 21, Chamblee SW

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

9 ROSWELL SW
10 ROSWELL SE
11 DULUTH SW
15 CHAMBLEE NW
17 NORCROSS NW
21 CHAMBLEE SW

CHAMBLEE NE, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 16 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 10, Roswell SE

Joins sheet 11, Duluth SW

Joins sheet 12, Duluth SE

Joins sheet 16, Chamblee NE

Joins sheet 18, Norcross NE

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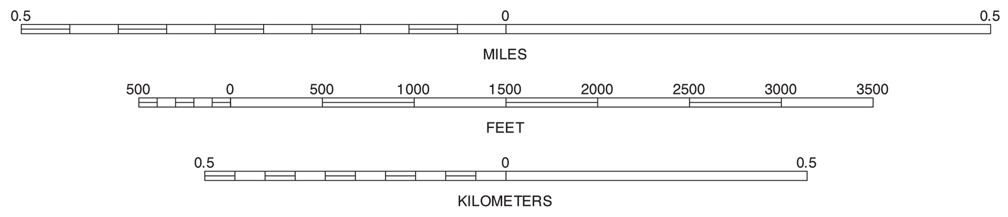
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000



10	11	12
16		18

10 ROSWELL SE
11 DULUTH SW
12 DULUTH SE
16 CHAMBLEE NE
18 NORCROSS NE

INDEX TO ADJOINING 3.75 MAPS

NORCROSS NW, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 17 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
NORCROSS NE QUADRANGLE
SHEET NUMBER 18 OF 57

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1999-2000 aerial photography. Hydrography information was acquired from the Natural Resources Conservation Service. Hydrography layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

11 DULUTH SW
12 DULUTH SE
13 SUWANEE SW
17 NORCROSS NW

INDEX TO ADJOINING 3.75 MAPS

NORCROSS NE, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 18 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
SANDY SPRINGS SW QUADRANGLE
SHEET NUMBER 19 OF 57

Joins sheet 14, Sandy Springs NE

Joins sheet 20, Sandy Springs SE

Joins sheet 22, Northwest Atlanta NW

Joins sheet 23, Northwest Atlanta NE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1999-2000 aerial photography. Hydrography information was acquired from the Natural Resources Conservation Service. Hydrography layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 0 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 0 0.5

		14
	■	20
	22	23

14 SANDY SPRINGS NE
20 SANDY SPRINGS SE
22 NORTHWEST ATLANTA NW
23 NORTHWEST ATLANTA NE

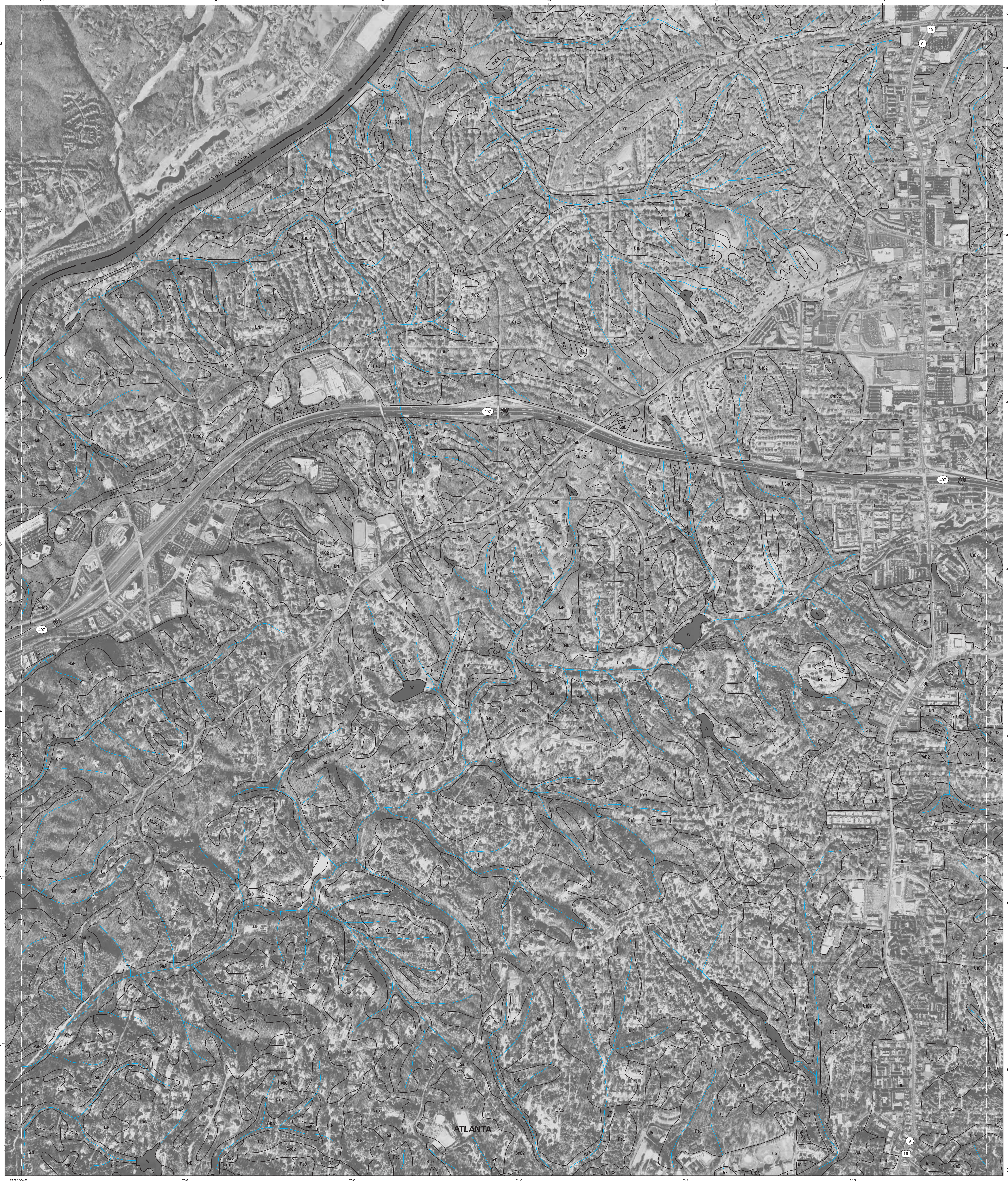
INDEX TO ADJOINING 3.75 MAPS

SANDY SPRINGS SW, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 19 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
SANDY SPRINGS SE QUADRANGLE
SHEET NUMBER 20 OF 57



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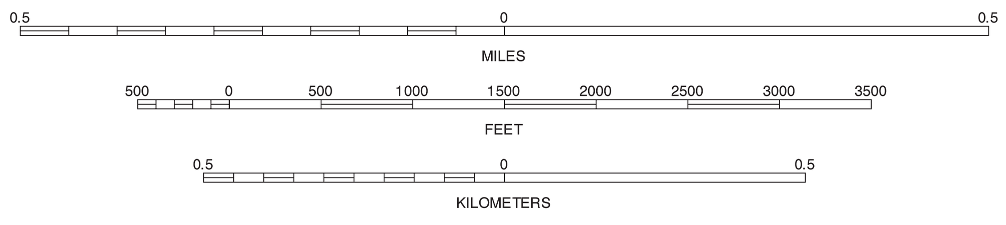
QUARTER QUADRANGLE LOCATION

SCALE 1:12000



	14	15
19		21
22	23	24

14 SANDY SPRINGS NE
15 CHAMBLEE NW
19 SANDY SPRINGS SW
21 CHAMBLEE SW
22 NORTHWEST ATLANTA NW
23 NORTHWEST ATLANTA NE
24 NORTHEAST ATLANTA NW

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SANDY SPRINGS SE, GEORGIA

3.75 MINUTE SERIES
SHEET NUMBER 20 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
CHAMBLEE SW QUADRANGLE
SHEET NUMBER 21 OF 57

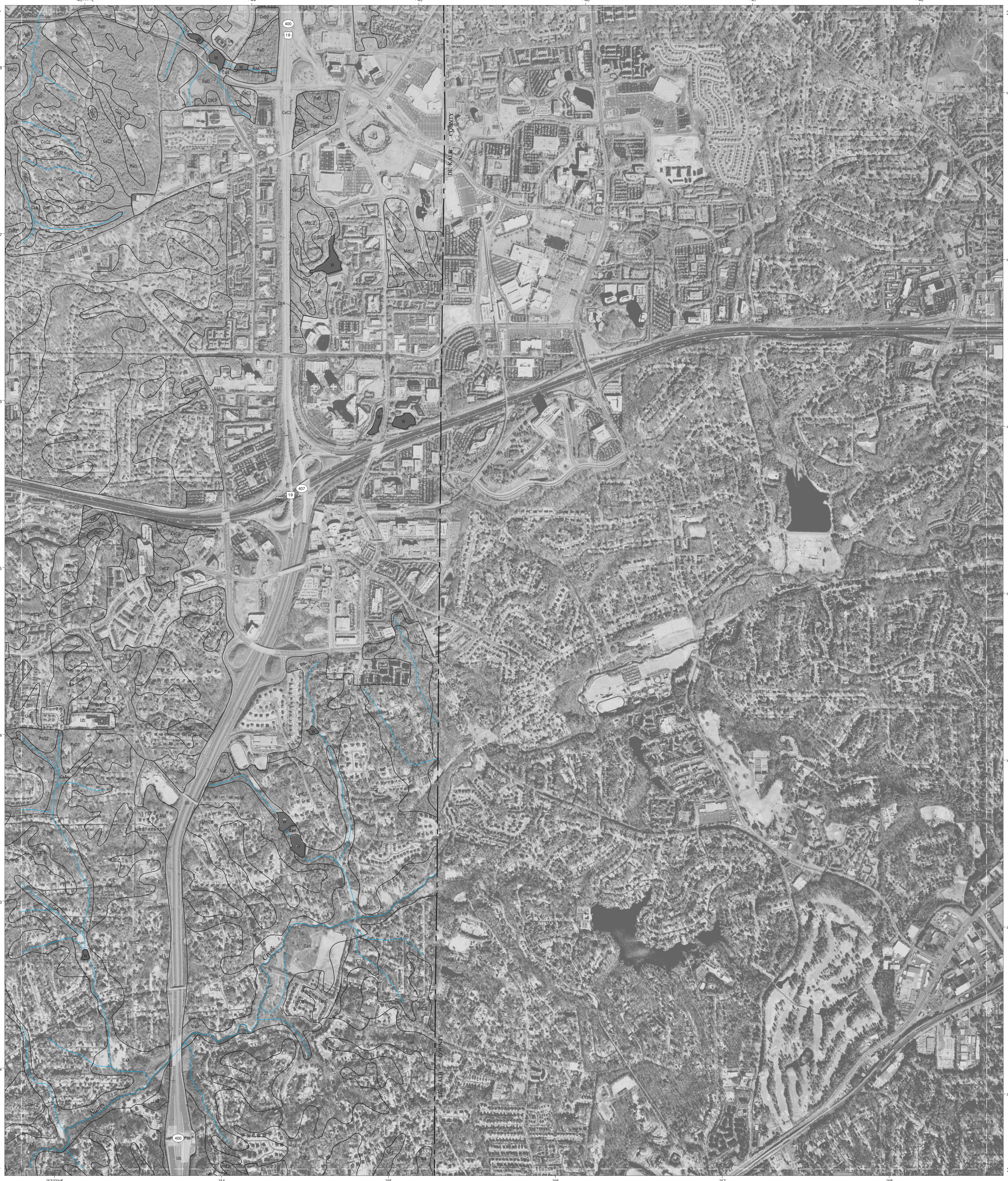
Joins sheet 14, Sandy Springs NE

Joins sheet 15, Chamblee NW

Joins sheet 16, Chamblee NE

84° 22′30″ 84° 18′45″

33° 56′15″ 33° 56′15″



33° 52′30″ 33° 52′30″

84° 22′30″ 84° 18′45″

Joins sheet 20, Sandy Springs SE

Joins sheet 23, Northwest Atlanta NE

Joins sheet 24, Northeast Atlanta NW

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

14	15	16
20		
23	24	

14 SANDY SPRINGS NE
15 CHAMBLEE NW
16 CHAMBLEE NE
20 SANDY SPRINGS SE
23 NORTHWEST ATLANTA NE
24 NORTHEAST ATLANTA NW

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CHAMBLEE SW, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 21 OF 57

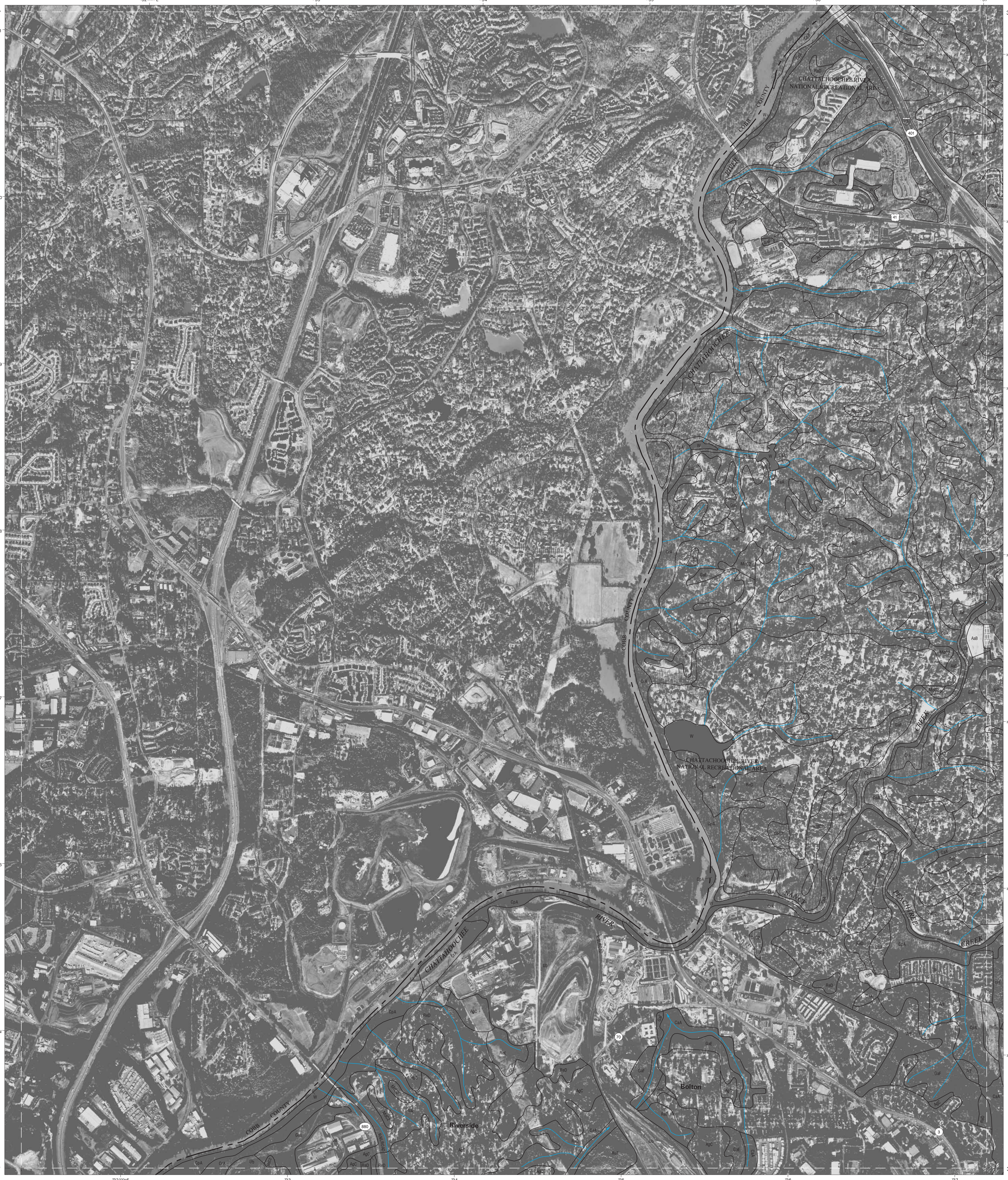
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
NORTHWEST ATLANTA NW QUADRANGLE
SHEET NUMBER 22 OF 57

Joins sheet 19, Sandy Springs SW

Joins sheet 20, Sandy Springs SE



Joins sheet 23, Northwest Atlanta NE

Joins sheet 27, Northwest Atlanta SW

Joins sheet 26, Mableton SE

Joins sheet 28, Northwest Atlanta SE

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE
LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

	19	20
		23
26	27	28

19 SANDY SPRINGS SW
20 SANDY SPRINGS SE
23 NORTHWEST ATLANTA NE
26 MABLETON SE
27 NORTHWEST ATLANTA SW
28 NORTHWEST ATLANTA SE

INDEX TO ADJOINING 3.75 MAPS

NORTHWEST ATLANTA NW, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 22 OF 57

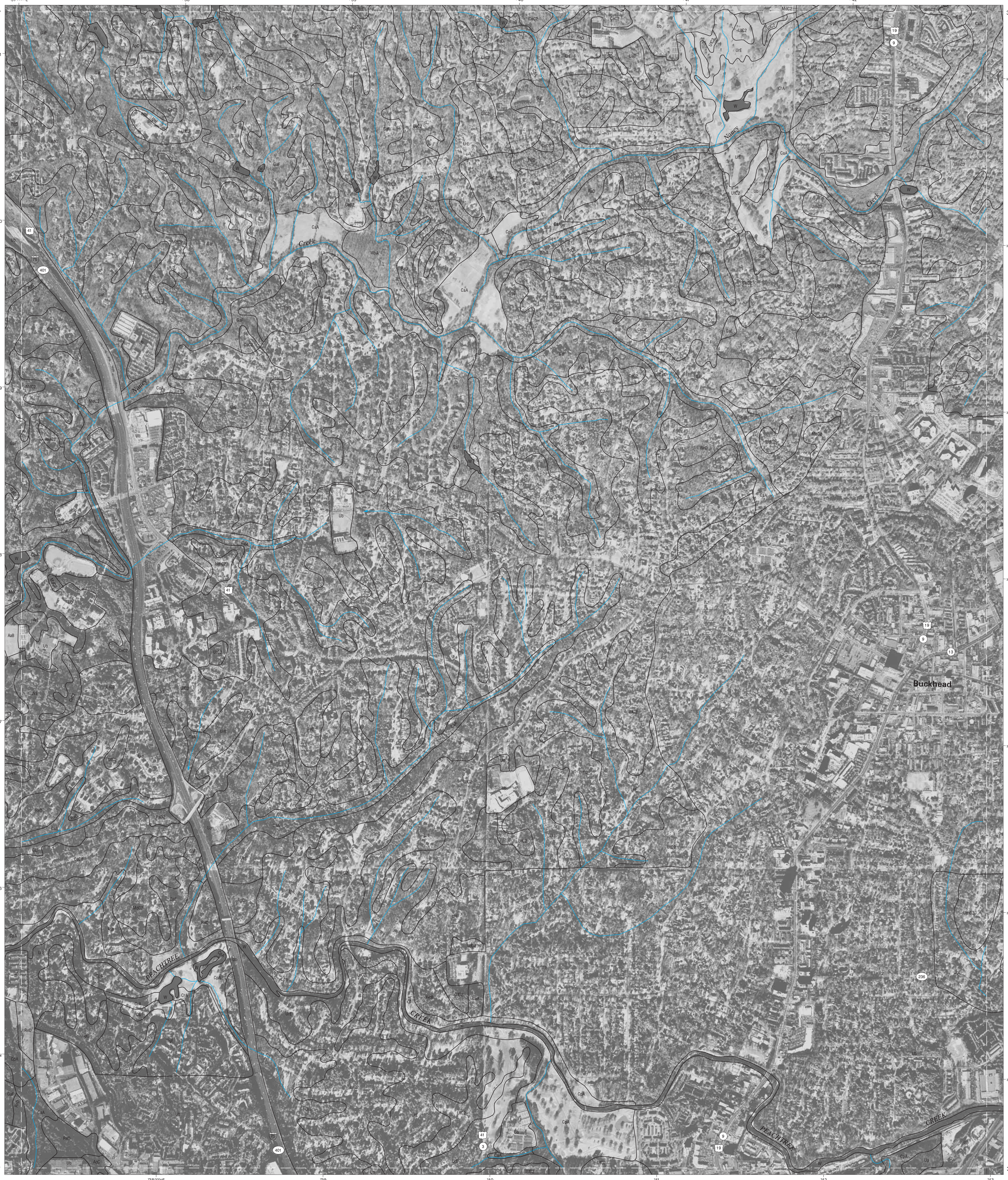
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
NORTHWEST ATLANTA NE QUADRANGLE
SHEET NUMBER 23 OF 57

Joins sheet 19, Sandy Springs SW
Joins sheet 20, Sandy Springs SE
Joins sheet 21, Chamblee SW
Joins sheet 22, Northwest Atlanta NW
Joins sheet 24, Northeast Atlanta NW

84° 26′15″ — 84° 22′30″
33° 52′30″ — 33° 48′45″



Joins sheet 27, Northwest Atlanta SW
Joins sheet 28, Northwest Atlanta SE
Joins sheet 29, Northeast Atlanta SW

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES — FEET — KILOMETERS

19	20	21
22		24
27	28	29

19 SANDY SPRINGS SW
20 SANDY SPRINGS SE
21 CHAMBLEE SW
22 NORTHWEST ATLANTA NW
24 NORTHEAST ATLANTA NW
27 NORTHWEST ATLANTA SW
28 NORTHEAST ATLANTA SE
29 NORTHEAST ATLANTA SW

INDEX TO ADJOINING 3.75 MAPS

NORTHWEST ATLANTA NE, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 23 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
NORTHEAST ATLANTA NW QUADRANGLE
SHEET NUMBER 24 OF 57

Joins sheet 20, Sandy Springs SE

Joins sheet 21, Chamblee SW

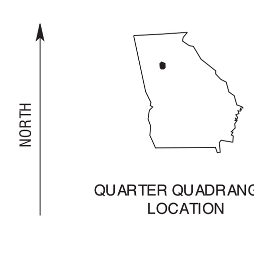
Joins sheet 23, Northwest Atlanta NE

Joins sheet 29, Northeast Atlanta SW

Joins sheet 28, Northwest Atlanta SE

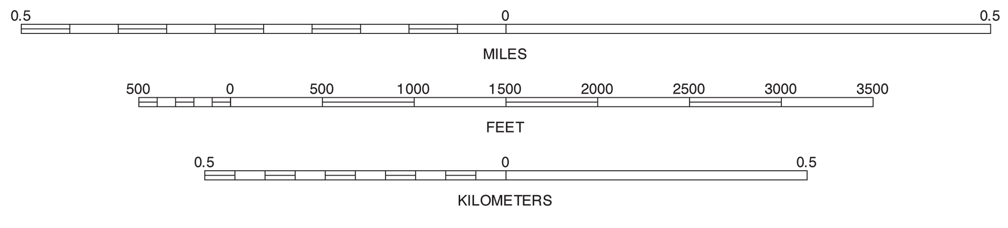
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1999-2000 aerial photography. Hydrography information was acquired from the Natural Resources Conservation Service. Hydrography layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000



20	21	
23		
28	29	

20 SANDY SPRINGS SE
21 CHAMBLEE SW
23 NORTHWEST ATLANTA NE
28 NORTHWEST ATLANTA SE
29 NORTHEAST ATLANTA SW

INDEX TO ADJOINING 3.75 MAPS

NORTHEAST ATLANTA NW, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 24 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

84° 37′30″ | 84° 33′45″
33° 48′45″ | 33° 48′45″

Joins sheet 26, Mableton SE

33° 45′00″ | 33° 45′00″
84° 37′30″ | 84° 33′45″

Joins sheet 30, Campbellton NE

Joins sheet 31, Ben Hill NW

Joins sheet 32, Ben Hill NE

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

26 MABLETON SE
30 CAMPBELLTON NE
31 BEN HILL NW
32 BEN HILL NE

INDEX TO ADJOINING 3.75 MAPS

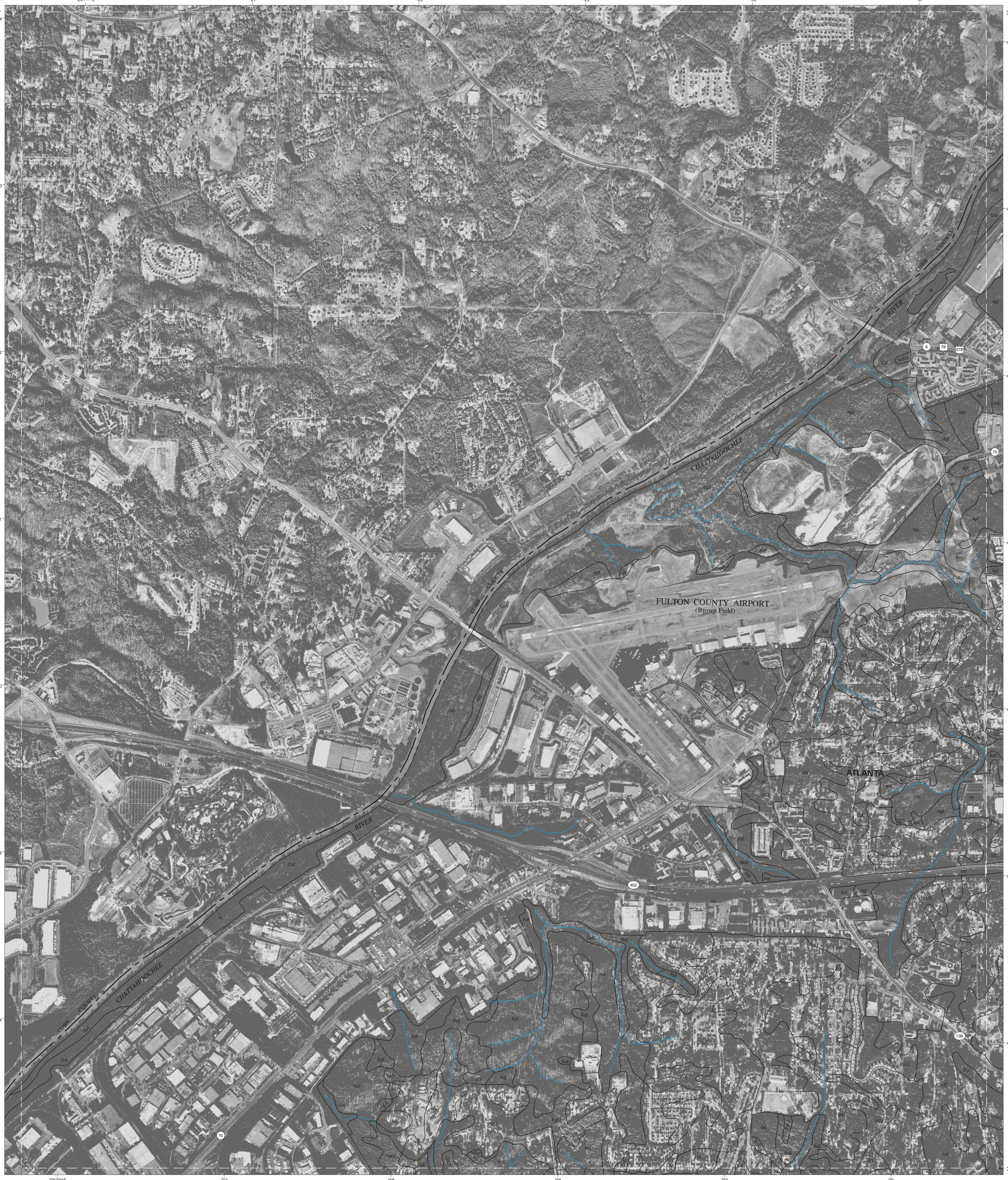
MABLETON SW, GEORGIA

3.75 MINUTE SERIES
SHEET NUMBER 25 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

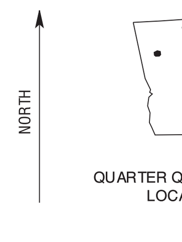
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
MABLETON SE QUADRANGLE
SHEET NUMBER 26 OF 57



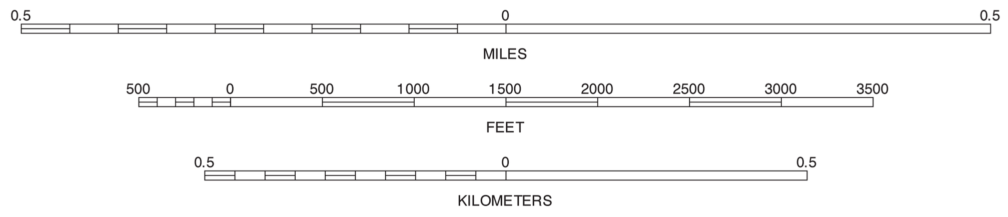
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1999-2000 aerial photography. Hydrography information was acquired from the Natural Resources Conservation Service. Hydrography layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000



		22
25		27
31	32	33

22 NORTHWEST ATLANTA NW
25 MABLETON SW
27 NORTHWEST ATLANTA SW
31 BEN HILL NW
32 BEN HILL NE
33 SOUTHWEST ATLANTA NW

INDEX TO ADJOINING 3.75 MAPS

MABLETON SE, GEORGIA

3.75 MINUTE SERIES
SHEET NUMBER 26 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
NORTHWEST ATLANTA SW QUADRANGLE
SHEET NUMBER 27 OF 57

Joins sheet 22, Northwest Atlanta NW

Joins sheet 23, Northwest Atlanta NE

84° 30′00″ | 84° 26′15″
33° 48′45″

Joins sheet 26, Mableton SE

Joins sheet 28, Northwest Atlanta NE

33° 45′00″
84° 30′00″ | 84° 26′15″

Joins sheet 32, Ben Hill NE

Joins sheet 33, Southwest Atlanta NW

Joins sheet 34, Southwest Atlanta NE

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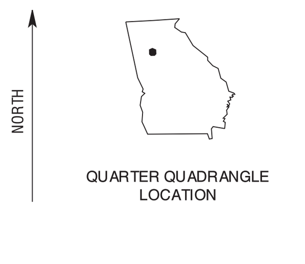
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 0 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 0 0.5

	22	23
26		28
32	33	34

22 NORTHWEST ATLANTA NW
23 NORTHWEST ATLANTA NE
26 MABLETON SE
28 NORTHWEST ATLANTA SE
32 BEN HILL NE
33 SOUTHWEST ATLANTA NW
34 SOUTHWEST ATLANTA NE

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NORTHWEST ATLANTA SW, GEORGIA

3.75 MINUTE SERIES
SHEET NUMBER 27 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
NORTHWEST ATLANTA SE QUADRANGLE
SHEET NUMBER 28 OF 57

Joins sheet 22, Northwest Atlanta NW

Joins sheet 23, Northwest Atlanta NE

Joins sheet 24, Northeast Atlanta NW

84° 26′15″ 84° 22′30″
33° 48′45″ 33° 48′45″

Joins sheet 27, Northwest Atlanta SW

Joins sheet 29, Northeast Atlanta SW

33° 45′00″ 33° 45′00″
84° 26′15″ 84° 22′30″

Joins sheet 33, Southwest Atlanta NW

Joins sheet 34, Southwest Atlanta NE

Joins sheet 35, Southeast Atlanta NW

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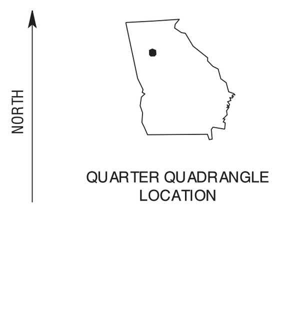
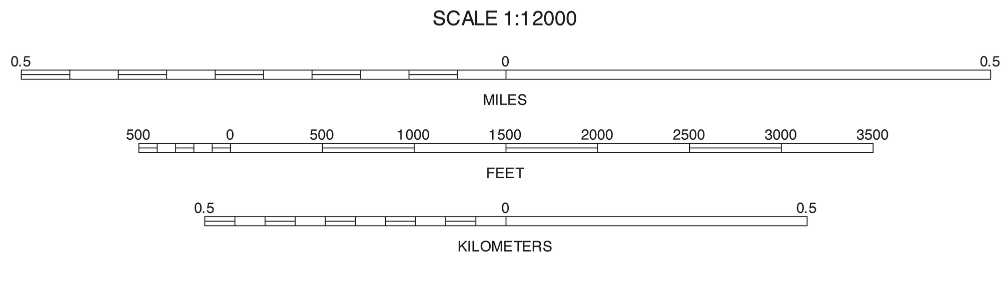
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000



22	23	24	22 NORTHWEST ATLANTA NW
			23 NORTHWEST ATLANTA NE
			24 NORTHEAST ATLANTA NW
27		29	27 NORTHWEST ATLANTA SW
			29 NORTHEAST ATLANTA SW
33	34	35	33 SOUTHWEST ATLANTA NW
			34 SOUTHWEST ATLANTA NE
			35 SOUTHEAST ATLANTA NW

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NORTHWEST ATLANTA SE, GEORGIA

3.75 MINUTE SERIES
SHEET NUMBER 28 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
NORTHEAST ATLANTA SW QUADRANGLE
SHEET NUMBER 29 OF 57

Joins sheet 23, Northwest Atlanta NE

Joins sheet 24, Northeast Atlanta NW

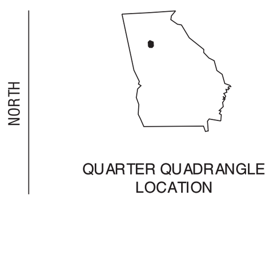
Joins sheet 28, Northwest Atlanta SE

Joins sheet 34, Southwest Atlanta NE

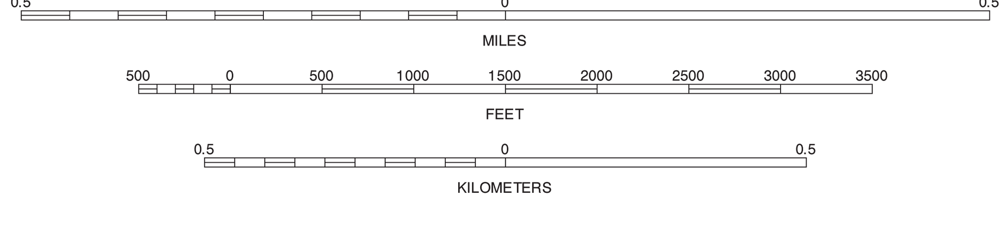
Joins sheet 35, Southeast Atlanta NW

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1999-2000 aerial photography. Hydrography information was acquired from the Natural Resources Conservation Service. Hydrography layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



SCALE 1:12000



23	24	
28		
34	35	

23 NORTHWEST ATLANTA NE
24 NORTHEAST ATLANTA NW
28 NORTHWEST ATLANTA SE
34 SOUTHWEST ATLANTA NE
35 SOUTHEAST ATLANTA NW

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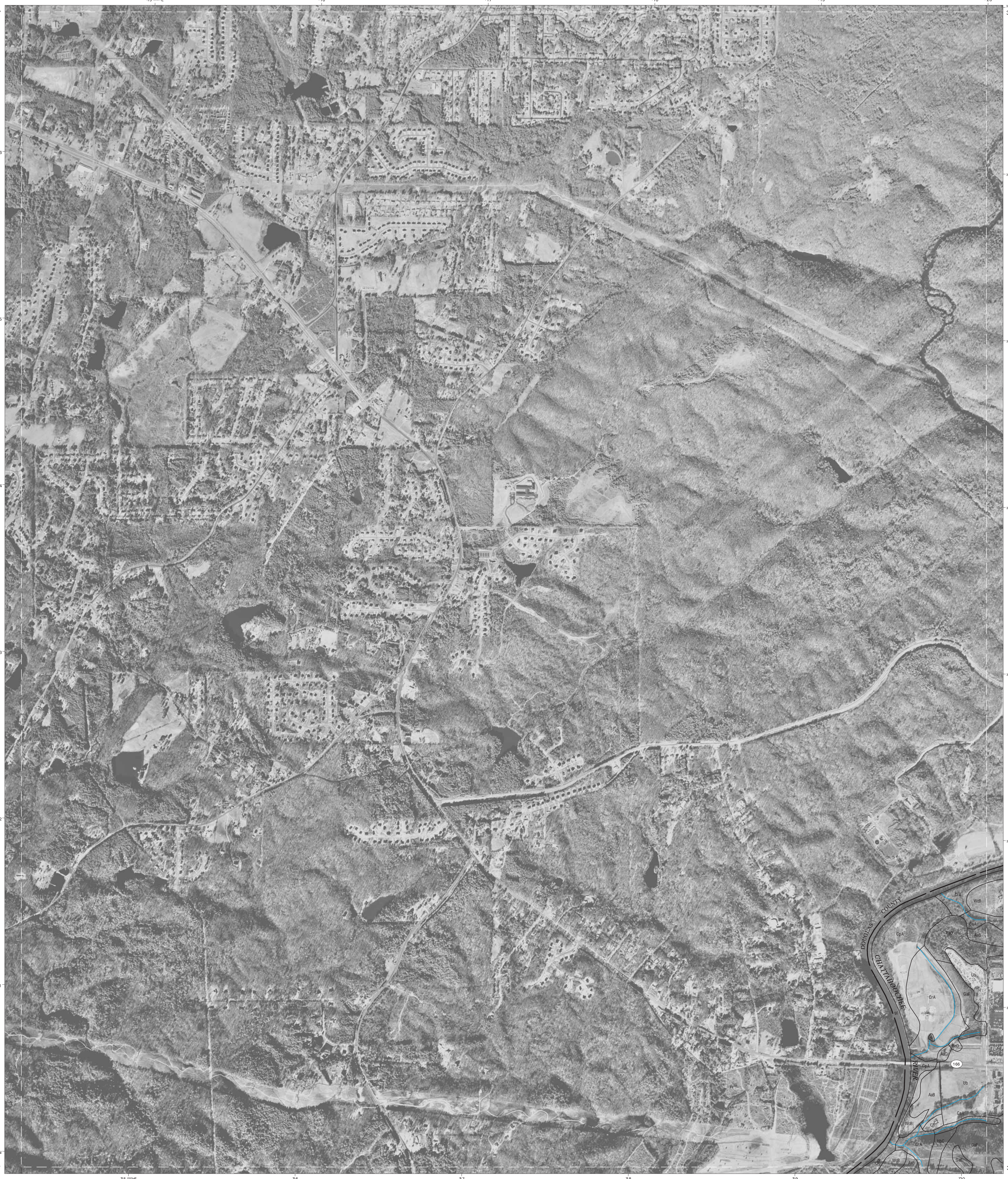
NORTHEAST ATLANTA SW, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 29 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
CAMPBELLTON NE QUADRANGLE
SHEET NUMBER 30 OF 57

Joins sheet 25, Mableton SW



Joins sheet 31, Ben Hill NW

Joins sheet 38, Campbellton SE

Joins sheet 37, Campbellton SW

Joins sheet 39, Ben Hill SW

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

		25
	■	31
37	38	39

25 MABLETON SW
31 BEN HILL NW
37 CAMPBELLTON SW
38 CAMPBELLTON SE
39 BEN HILL SW

INDEX TO ADJOINING 3.75 MAPS

CAMPBELLTON NE, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 30 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

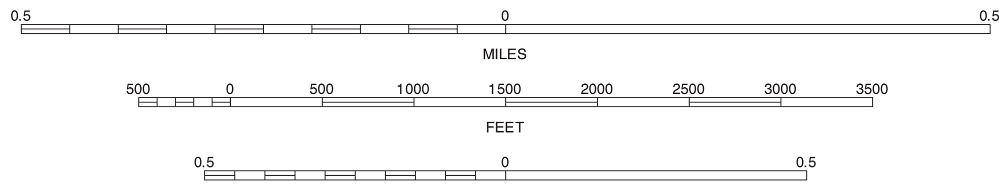
FULTON COUNTY, GEORGIA
BEN HILL NW QUADRANGLE
SHEET NUMBER 31 OF 57

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1999-2000 aerial photography. Hydrography information was acquired from the Natural Resources Conservation Service. Hydrography layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000



	25	26
30		32
38	39	40

25 MABLETON SW
26 MABLETON SE
30 CAMPBELLTON NE
32 BEN HILL NE
38 CAMPBELLTON SE
39 BEN HILL SW
40 BEN HILL SE

INDEX TO ADJOINING 3.75 MAPS

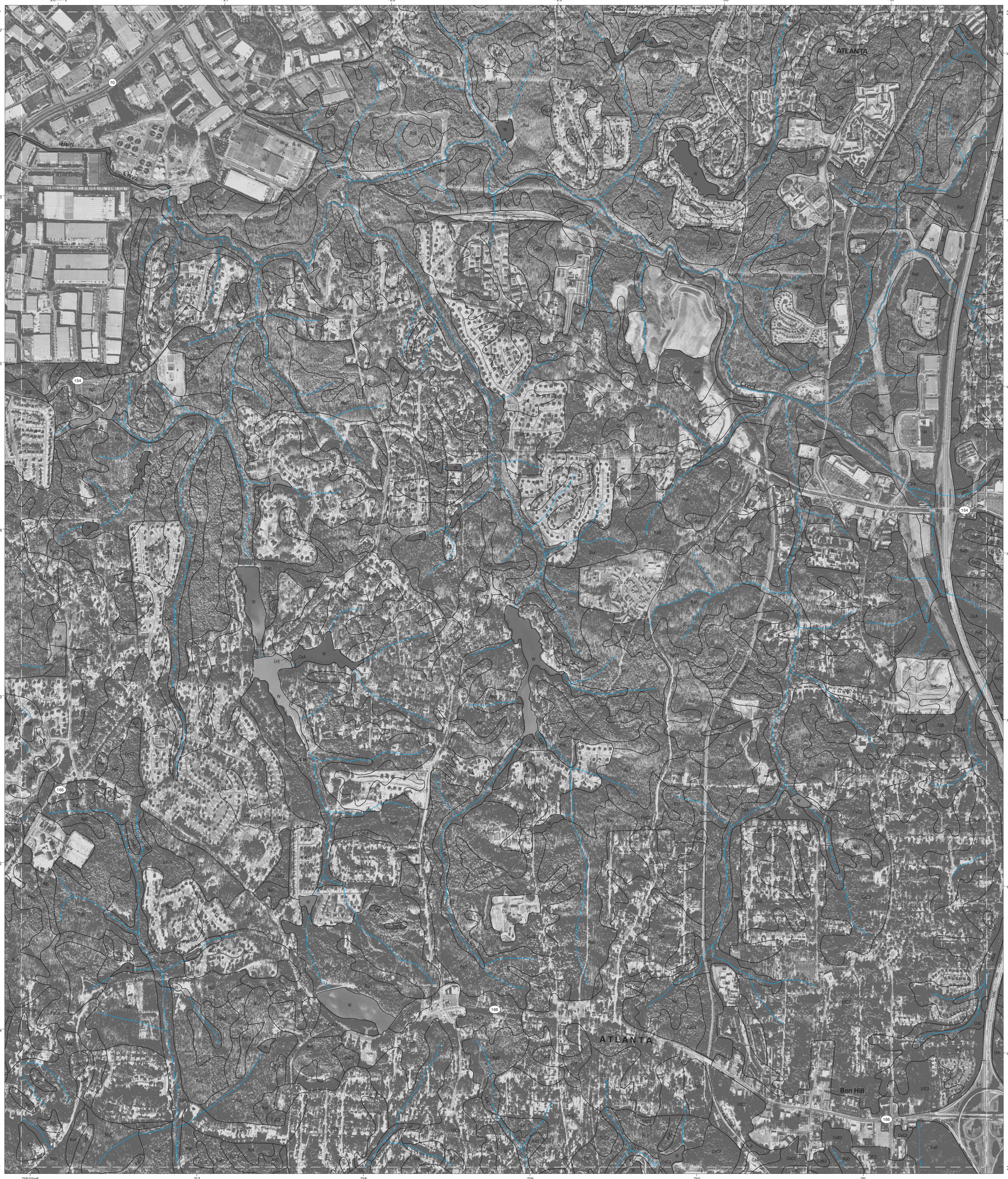
BEN HILL NW, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 31 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
BEN HILL NE QUADRANGLE
SHEET NUMBER 32 OF 57

Joins sheet 26, Mableton SE



Joins sheet 40, Ben Hill SE

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

25	26	27
31		33
39	40	41

25 MABLETON SW
26 MABLETON SE
27 NORTHWEST ATLANTA SW
31 BEN HILL NW
33 SOUTHWEST ATLANTA NW
39 BEN HILL SW
40 BEN HILL SE
41 SOUTHWEST ATLANTA SW

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BEN HILL NE, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 32 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

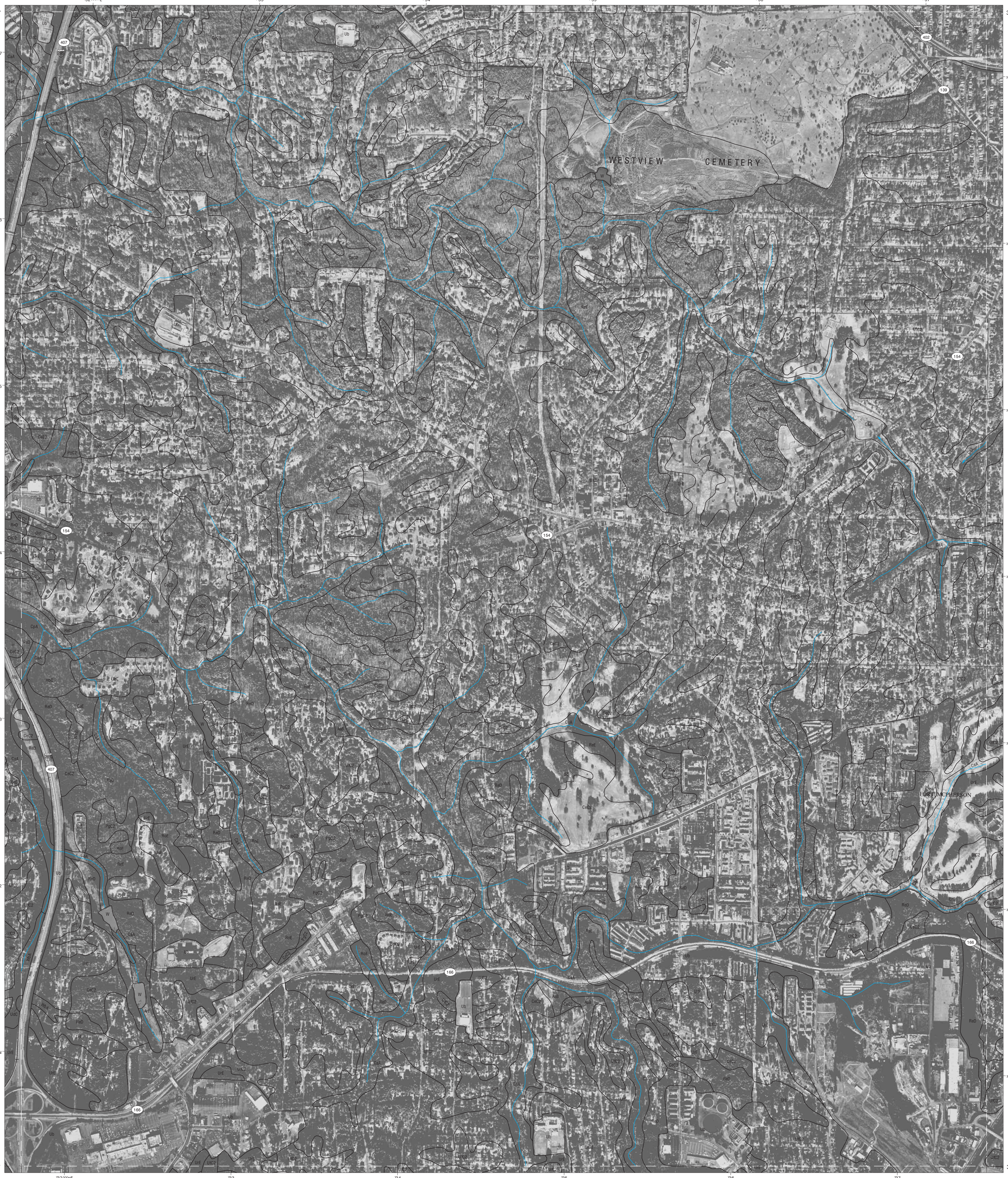
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
SOUTHWEST ATLANTA NW QUADRANGLE
SHEET NUMBER 33 OF 57

Joins sheet 26, Mableton SE

Joins sheet 27, Northwest Atlanta SW

Joins sheet 28, Northwest Atlanta SE



Joins sheet 40, Ben Hill SE

Joins sheet 41, Southwest Atlanta SW

Joins sheet 42, Southwest Atlanta SE

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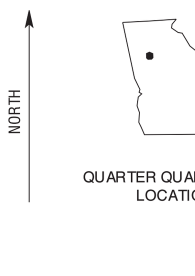
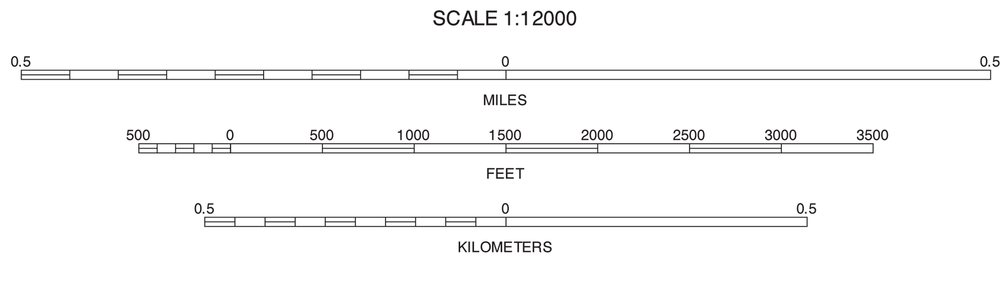


QUARTER QUADRANGLE LOCATION

SCALE 1:12000



26	27	28
32		34
40	41	42

26 MABLETON SE
27 NORTHWEST ATLANTA SW
28 NORTHWEST ATLANTA SE
32 BEN HILL NE
34 SOUTHWEST ATLANTA NE
40 BEN HILL SE
41 SOUTHWEST ATLANTA SW
42 SOUTHWEST ATLANTA SE

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SOUTHWEST ATLANTA NW, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 33 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
SOUTHWEST ATLANTA NE QUADRANGLE
SHEET NUMBER 34 OF 57

Joins sheet 27, Northwest Atlanta SW

Joins sheet 28, Northwest Atlanta SE

Joins sheet 29, Northeast Atlanta SW

84° 26′15″ 33° 45′00″

84° 22′30″ 33° 45′00″

Joins sheet 33, Southwest Atlanta NW

Joins sheet 35, Southeast Atlanta NW

33° 41′15″ 84° 26′15″

33° 41′15″ 84° 22′30″

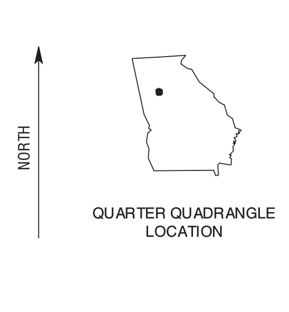
Joins sheet 41, Southwest Atlanta SW

Joins sheet 42, Southwest Atlanta SE

Joins sheet 43, Southeast Atlanta SW

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1999-2000 aerial photography. Hydrography information was acquired from the Natural Resources Conservation Service. Hydrography layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 — 0 — 0.5

FEET: 500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500

KILOMETERS: 0.5 — 0 — 0.5

27	28	29
33		35
41	42	43

27 NORTHWEST ATLANTA SW
28 NORTHWEST ATLANTA SE
29 NORTHEAST ATLANTA SW
33 SOUTHWEST ATLANTA NW
35 SOUTHEAST ATLANTA NW
41 SOUTHWEST ATLANTA SW
42 SOUTHWEST ATLANTA SE
43 SOUTHEAST ATLANTA SW

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SOUTHWEST ATLANTA NE, GEORGIA

3.75 MINUTE SERIES
SHEET NUMBER 34 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
SOUTHEAST ATLANTA NW QUADRANGLE
SHEET NUMBER 35 OF 57

Joins sheet 28, Northwest Atlanta SE

Joins sheet 29, Northeast Atlanta SW

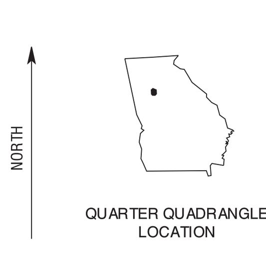
Joins sheet 34, Southwest Atlanta NE

Joins sheet 43, Southeast Atlanta SW

Joins sheet 42, Southwest Atlanta SE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1999-2000 aerial photography. Hydrography information was acquired from the Natural Resources Conservation Service. Hydrography layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

28	29	
34		
42	43	

28 NORTHWEST ATLANTA SE
29 NORTHEAST ATLANTA SW
34 SOUTHWEST ATLANTA NE
42 SOUTHWEST ATLANTA SE
43 SOUTHEAST ATLANTA SW

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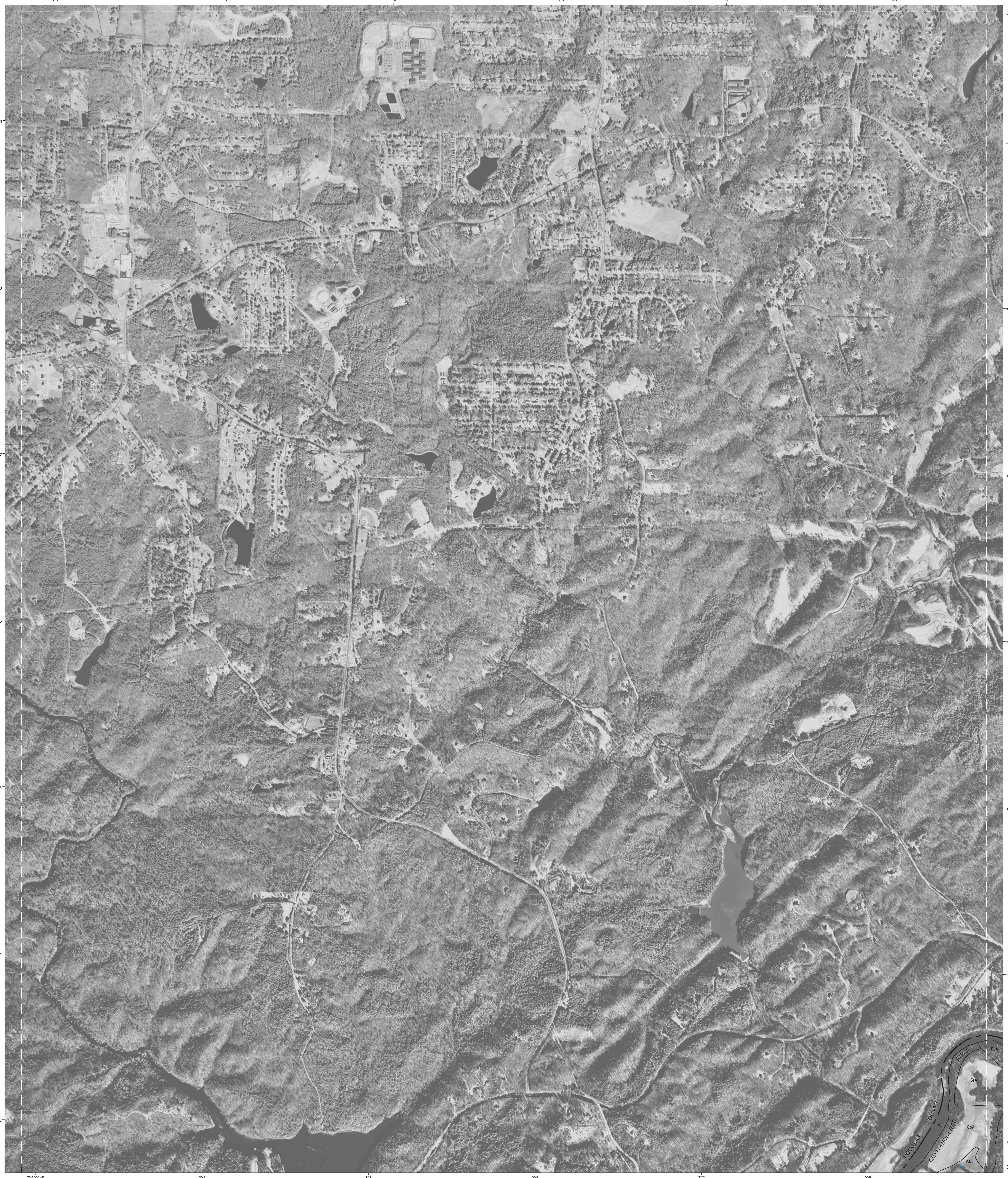
SOUTHEAST ATLANTA NW, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 35 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

	■	37
44	45	46

37 CAMPBELLTON SW
44 RICO NW
45 RICO NE
46 PALMETTO NW

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WINSTON SE, GEORGIA

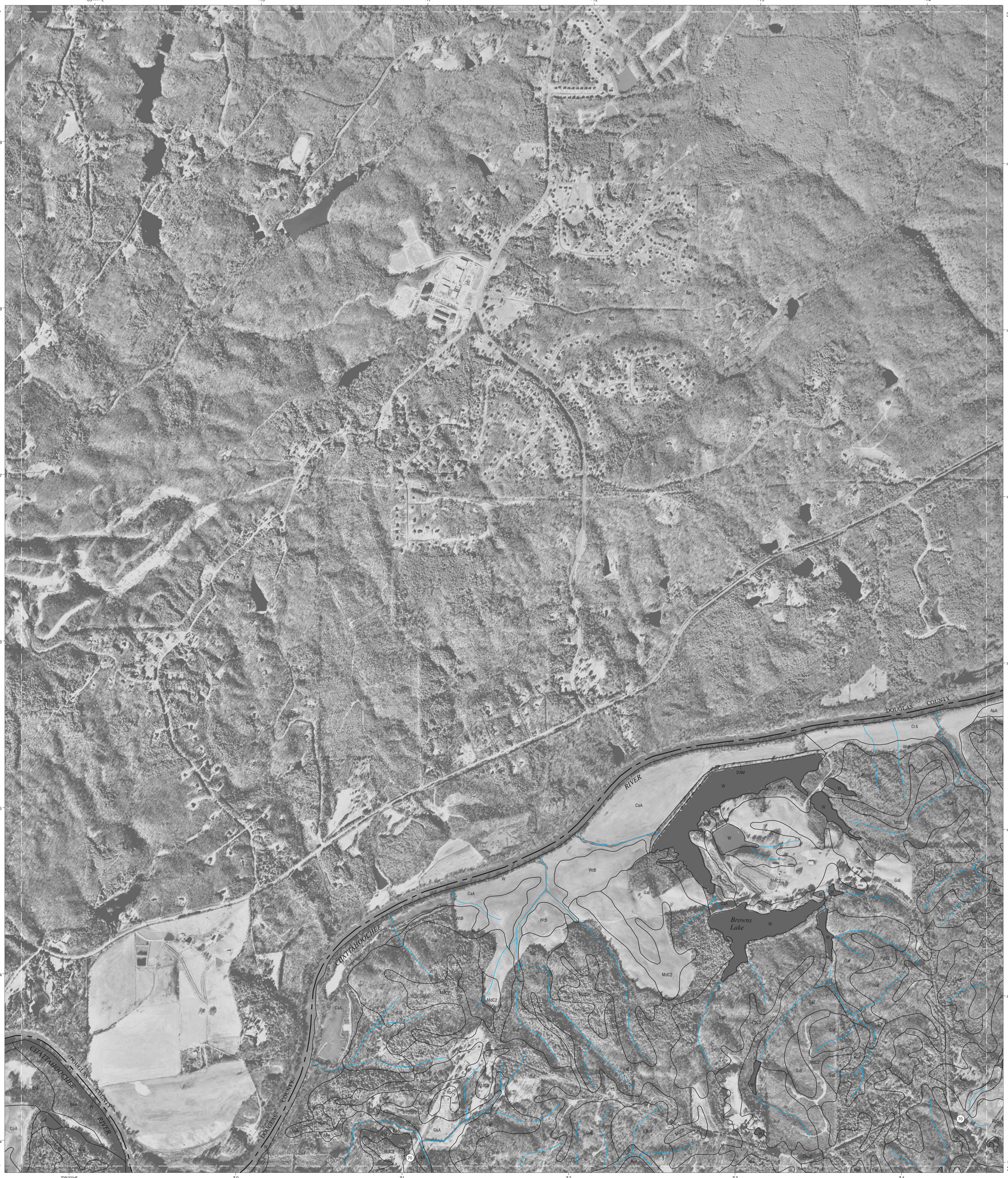
3.75 MINUTE SERIES
SHEET NUMBER 36 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
CAMPBELLTON SW QUADRANGLE
SHEET NUMBER 37 OF 57

Joins sheet 30, Campbellton NE



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

30 CAMPBELLTON NE
36 WINSTON SE
38 CAMPBELLTON SE
45 RICO NE
46 PALMETTO NW
47 PALMETTO NE

CAMPBELLTON SW, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 37 OF 57

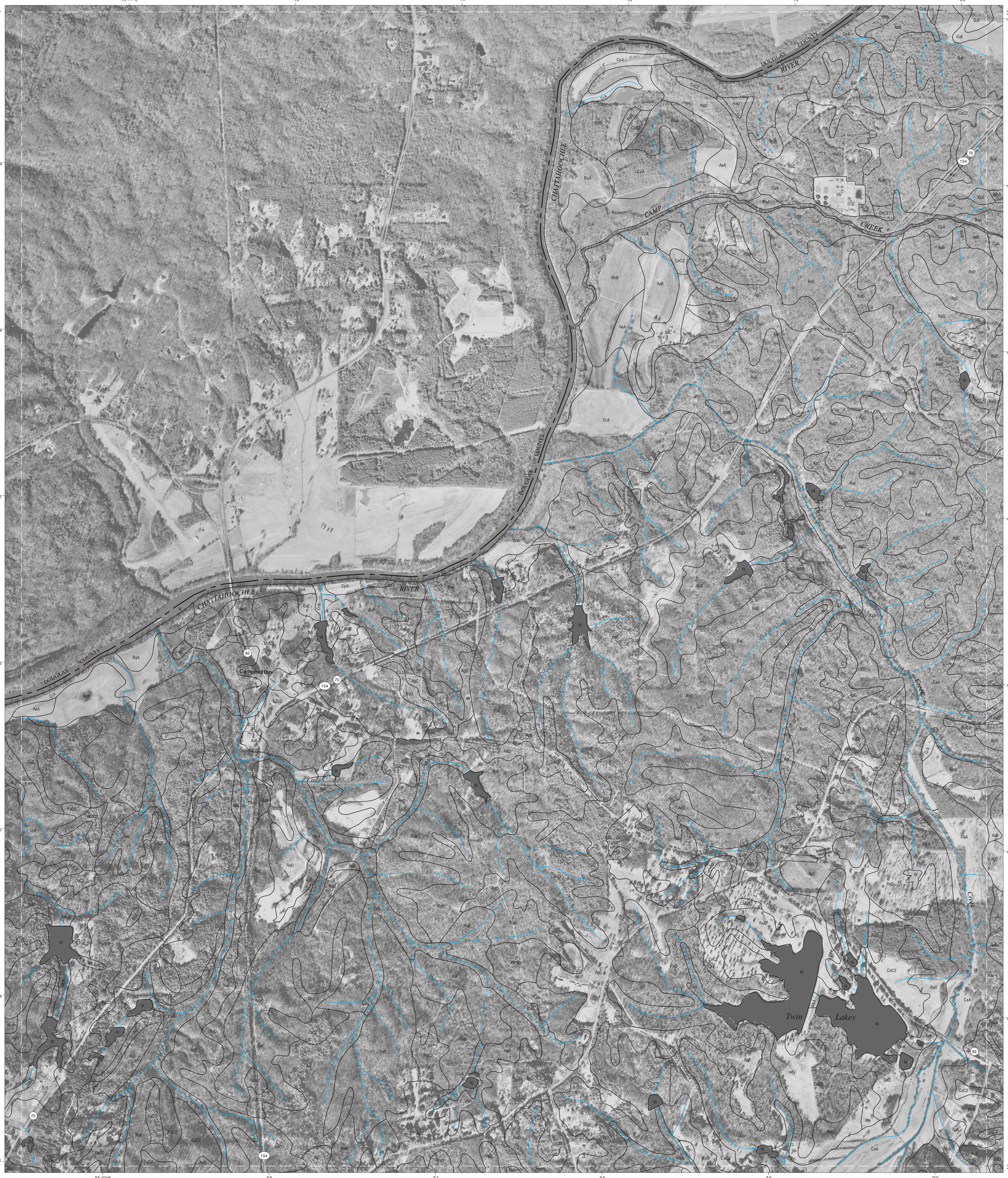
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 31, Ben Hill NW

Joins sheet 30, Campbellton NE

84° 41′15″ | 84° 37′30″

33° 41′15″



Joins sheet 37, Campbellton SW

Joins sheet 39, Ben Hill SW

33° 37′30″

84° 41′15″ | 84° 37′30″

Joins sheet 46, Palmetto NW

Joins sheet 47, Palmetto NE

Joins sheet 48, Fairburn NW

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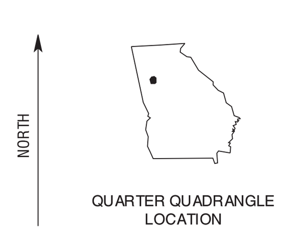
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 — 0 — 0.5 MILES

500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500 FEET

0.5 — 0 — 0.5 KILOMETERS

	30	31
37		39
46	47	48

30 CAMPBELLTON NE
31 BEN HILL NW
37 CAMPBELLTON SW
39 BEN HILL SW
46 PALMETTO NW
47 PALMETTO NE
48 FAIRBURN NW

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CAMPBELLTON SE, GEORGIA

3.75 MINUTE SERIES
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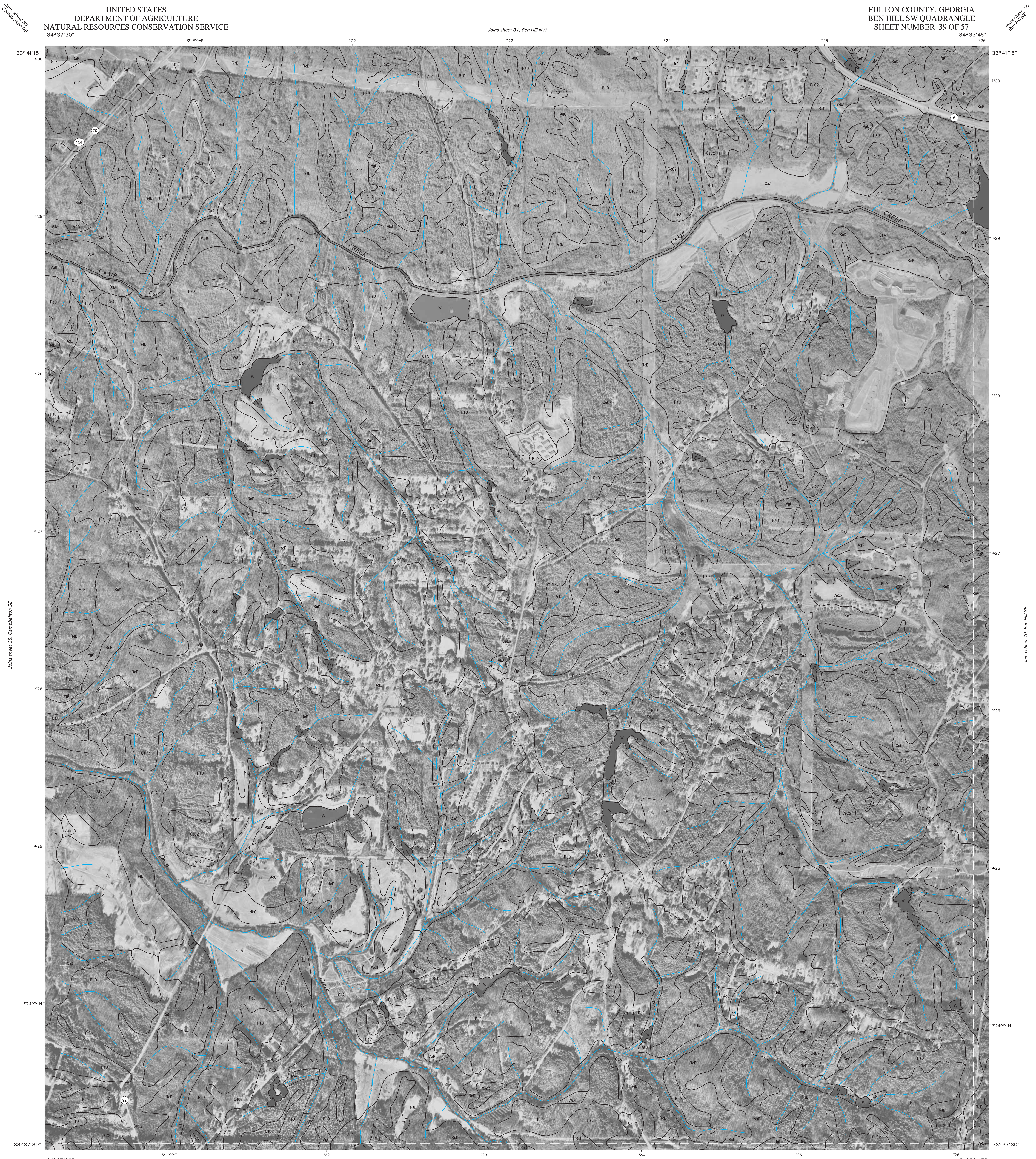
Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
BEN HILL SW QUADRANGLE
SHEET NUMBER 39 OF 57



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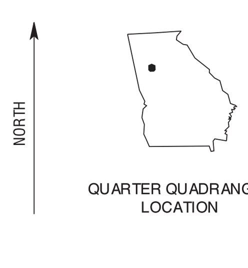
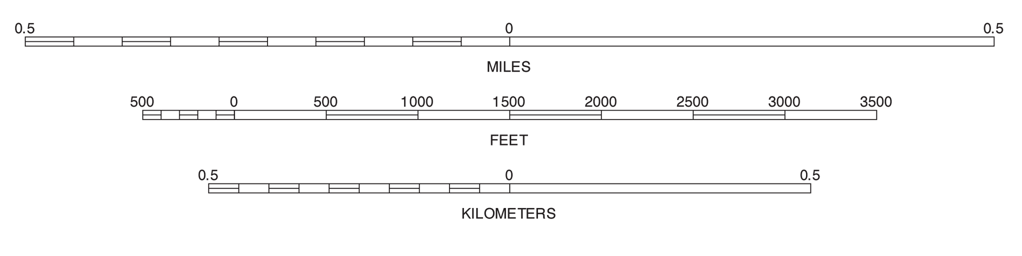
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION



30	31	32
38		40
47	48	49

30 CAMPBELLTON NE
31 BEN HILL NW
32 BEN HILL NE
38 CAMPBELLTON SE
40 BEN HILL SE
47 PALMETTO NE
48 FAIRBURN NW
49 FAIRBURN NE

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BEN HILL SW, GEORGIA

3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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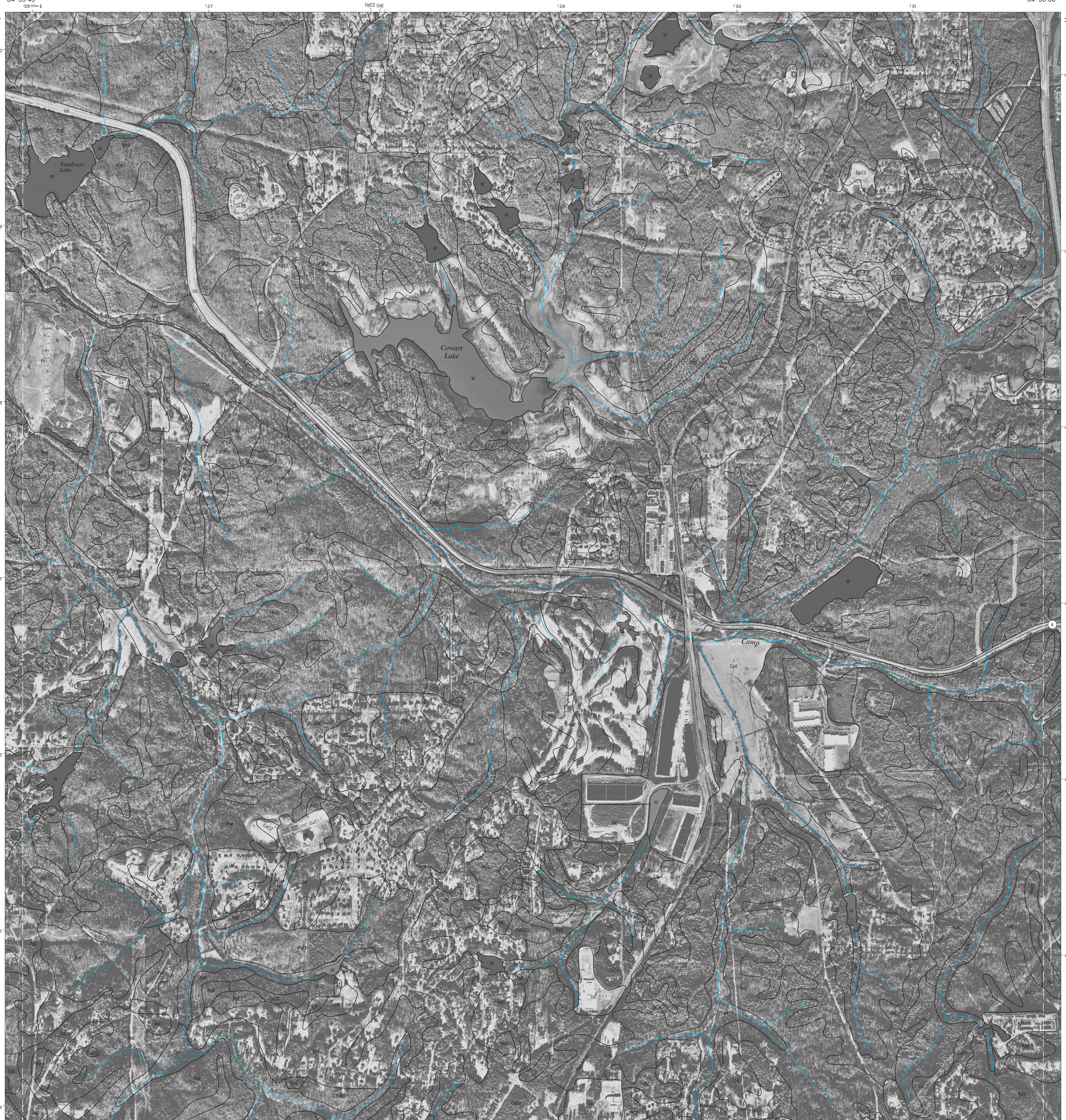
FULTON COUNTY, GEORGIA
BEN HILL SE QUADRANGLE
SHEET NUMBER 40 OF 57

Joins sheet 31, Ben Hill NW

Joins sheet 32, Ben Hill NE

Joins sheet 33, Southwest Atlanta NW



Joins sheet 39, Ben Hill SW

Joins sheet 41, Southwest Atlanta SW

Joins sheet 48, Fairburn NW

Joins sheet 49, Fairburn NE

Joins sheet 50, Riverdale NW

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

31	32	33
39		41
48	49	50

31 BEN HILL NW
32 BEN HILL NE
33 SOUTHWEST ATLANTA NW
39 BEN HILL SW
41 SOUTHWEST ATLANTA SW
48 FAIRBURN NW
49 FAIRBURN NE
50 RIVERDALE NW

INDEX TO ADJOINING 3.75 MAPS

BEN HILL SE, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 40 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
SOUTHWEST ATLANTA SW QUADRANGLE
SHEET NUMBER 41 OF 57

Joins sheet 32, Ben Hill NE

Joins sheet 33, Southwest Atlanta NW

Joins sheet 34, Southwest Atlanta NE

Joins sheet 40, Ben Hill SE

Joins sheet 42, Southwest Atlanta SE

Joins sheet 49, Fairburn NE

Joins sheet 50, Riverdale NW

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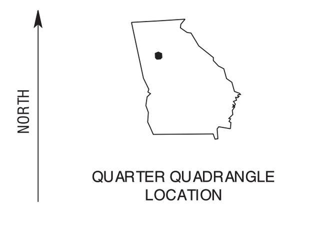
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

32	33	34
40		42
49	50	

32 BEN HILL NE
33 SOUTHWEST ATLANTA NW
34 SOUTHWEST ATLANTA NE
40 BEN HILL SE
42 SOUTHWEST ATLANTA SE
49 FAIRBURN NE
50 RIVERDALE NW

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SOUTHWEST ATLANTA SW, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 41 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

Joins sheet 33, Southwest Atlanta NW

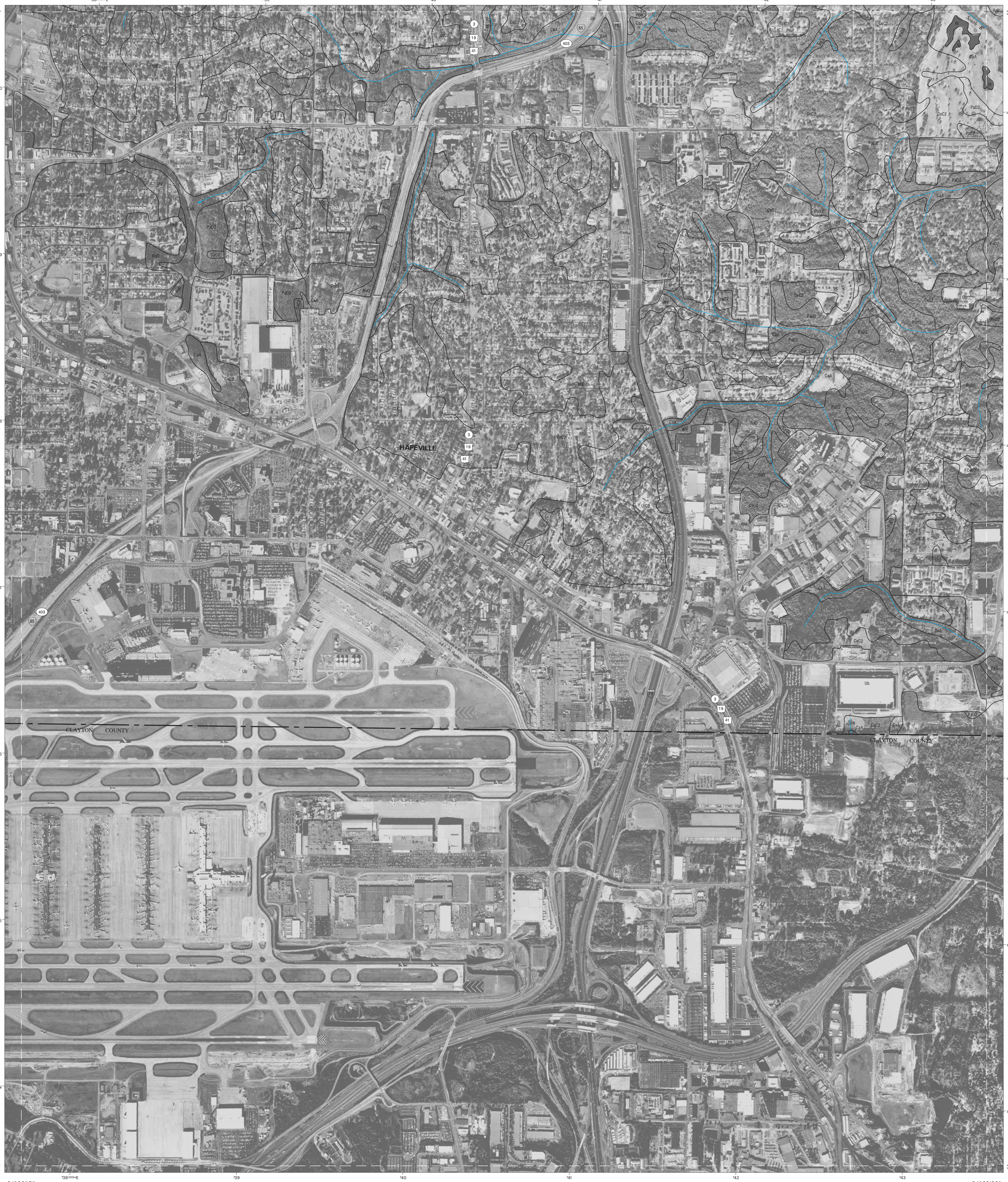
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
SOUTHWEST ATLANTA SE QUADRANGLE
SHEET NUMBER 42 OF 57

Joins sheet 35, Southeast Atlanta NW

Joins sheet 34, Southwest Atlanta NE

84° 26′15″ — 33° 41′15″ — 84° 22′30″ — 33° 41′15″



Joins sheet 41, Southwest Atlanta SW

Joins sheet 43, Southeast Atlanta SW

33° 37′30″ — 84° 26′15″ — 738000mE — 739 — 740 — 741 — 742 — 743 — 84° 22′30″ — 33° 37′30″

Joins sheet 50, Riverdale NW

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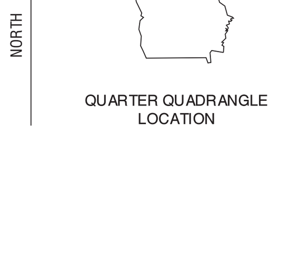
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES (0.5 — 0 — 0.5)

FEET (500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500)

KILOMETERS (0.5 — 0 — 0.5)

33	34	35
41		43
50		

33 SOUTHWEST ATLANTA NW
34 SOUTHWEST ATLANTA NE
35 SOUTHEAST ATLANTA NW
41 SOUTHWEST ATLANTA SW
43 SOUTHEAST ATLANTA SW
50 RIVERDALE NW

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SOUTHWEST ATLANTA SE, GEORGIA

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
SOUTHEAST ATLANTA SW QUADRANGLE
SHEET NUMBER 43 OF 57

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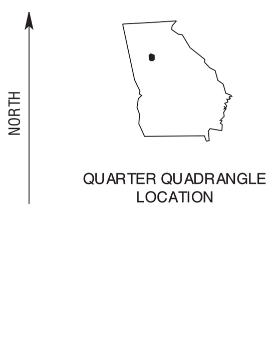
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

34	35	
42	■	

34 SOUTHWEST ATLANTA NE
35 SOUTHEAST ATLANTA NW
42 SOUTHWEST ATLANTA SE

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SOUTHEAST ATLANTA SW, GEORGIA
3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
RICO NW QUADRANGLE
SHEET NUMBER 44 OF 57

Joins sheet 36, Winston SE

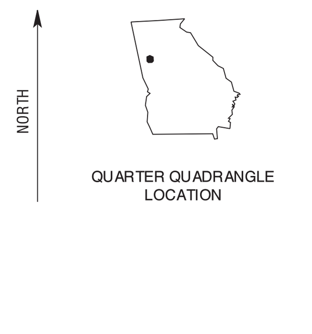
Joins sheet 45, Rico NE

Joins sheet 51, Rico SW

Joins sheet 52, Rico SE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1999-2000 aerial photography. Hydrography information was acquired from the Natural Resources Conservation Service. Hydrography layer was edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

		36
	■	45
	51	52

36 WINSTON SE
45 RICO NE
51 RICO SW
52 RICO SE

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RICO NW, GEORGIA

3.75 MINUTE SERIES
SHEET NUMBER 44 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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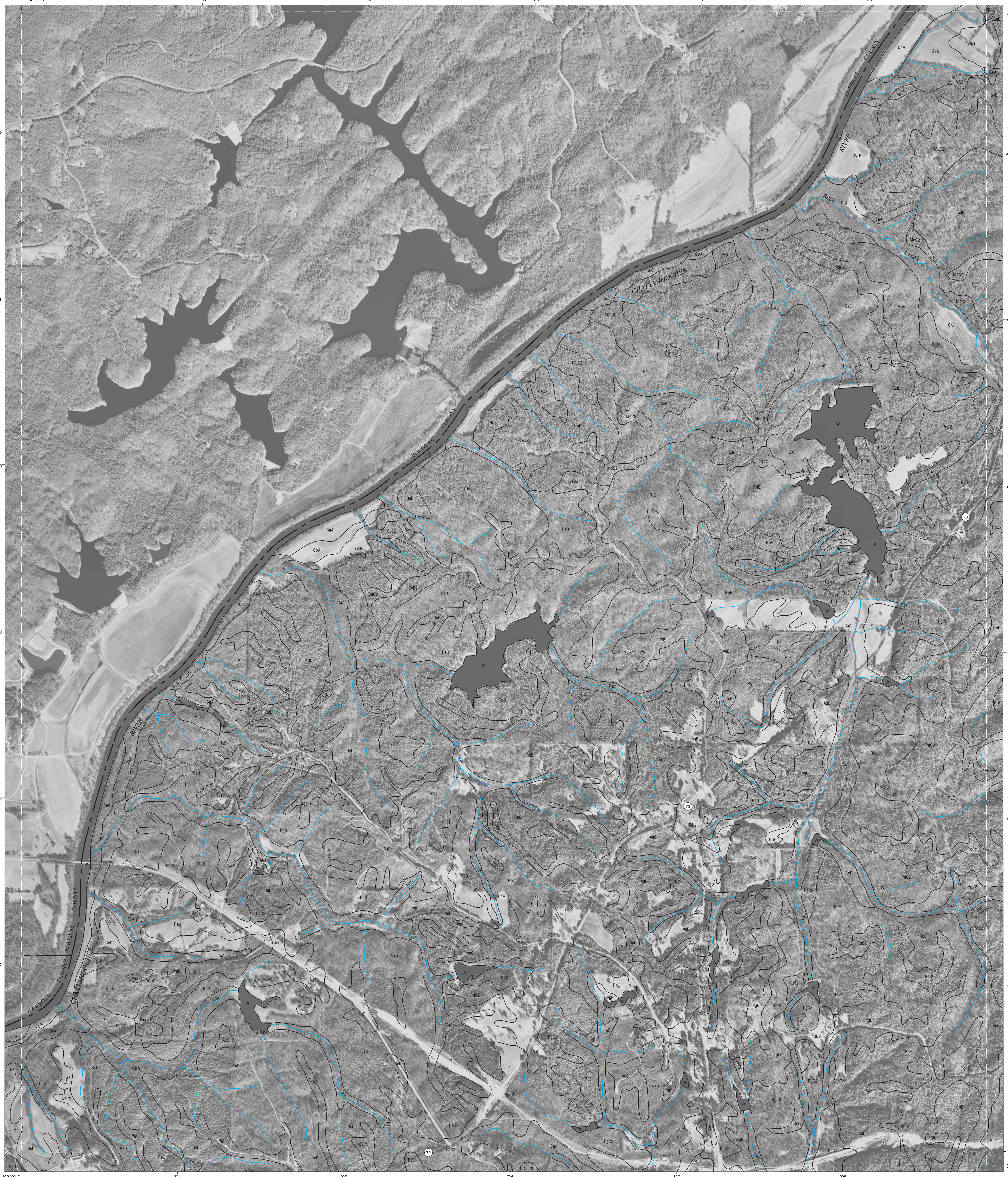
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
RICO NE QUADRANGLE
SHEET NUMBER 45 OF 57

Joins sheet 36, Winston SE

Joins sheet 37, Campbellton SW



Joins sheet 44, Rico NW

Joins sheet 46, Palmetto NW

Joins sheet 52, Rico SE

Joins sheet 51, Rico SW

Joins sheet 53, Palmetto SW

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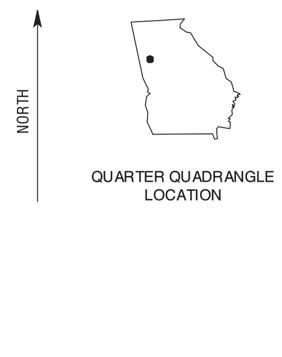

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

	36	37
44		46
51	52	53

36 WINSTON SE
37 CAMPBELLTON SW
44 RICO NW
46 PALMETTO NW
51 RICO SW
52 RICO SE
53 PALMETTO SW

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RICO NE, GEORGIA

3.75 MINUTE SERIES
SHEET NUMBER 45 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

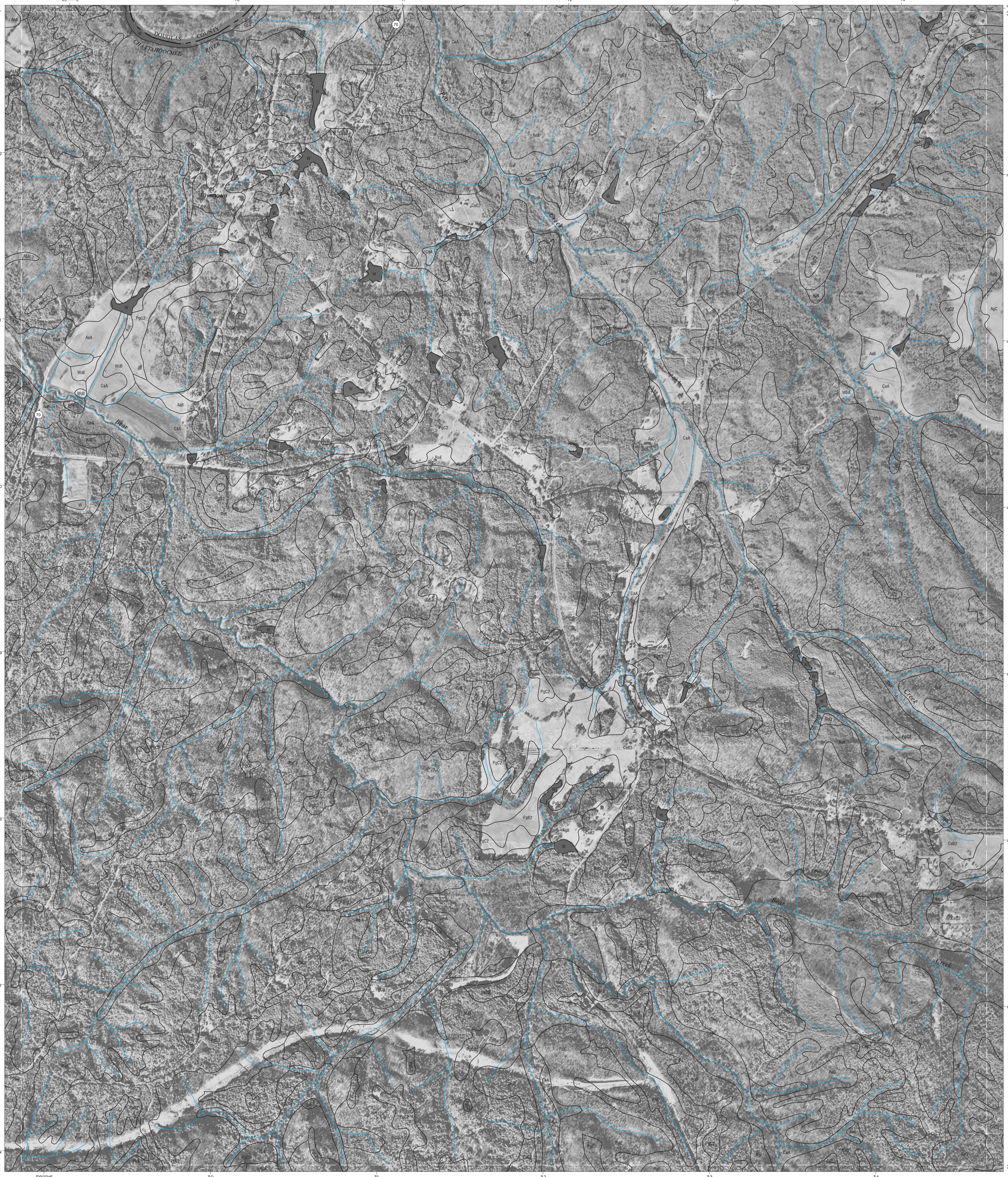
FULTON COUNTY, GEORGIA
PALMETTO NW QUADRANGLE
SHEET NUMBER 46 OF 57

Joins sheet 36, Winston SE

Joins sheet 37, Campbellton SW

Joins sheet 38, Campbellton SE

84° 45′00″ | 33° 37′30″ | 84° 41′15″ | 33° 37′30″



Joins sheet 45, Rico NE

Joins sheet 47, Palmetto NE

33° 33′45″ | 84° 45′00″ | 84° 41′15″ | 33° 33′45″

Joins sheet 52, Rico SE

Joins sheet 53, Palmetto SW

Joins sheet 54, Palmetto SE

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 — 0 — 0.5

FEET: 500 — 0 — 500 — 1000 — 1500 — 2000 — 2500 — 3000 — 3500

KILOMETERS: 0.5 — 0 — 0.5

36	37	38
45		47
52	53	54

36 WINSTON SE
37 CAMPBELLTON SW
38 CAMPBELLTON SE
45 RICO NE
47 PALMETTO NE
52 RICO SE
53 PALMETTO SW
54 PALMETTO SE

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PALMETTO NW, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 46 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
PALMETTO NE QUADRANGLE
SHEET NUMBER 47 OF 57

Joins sheet 37, Campbellton SW

Joins sheet 38, Campbellton SE

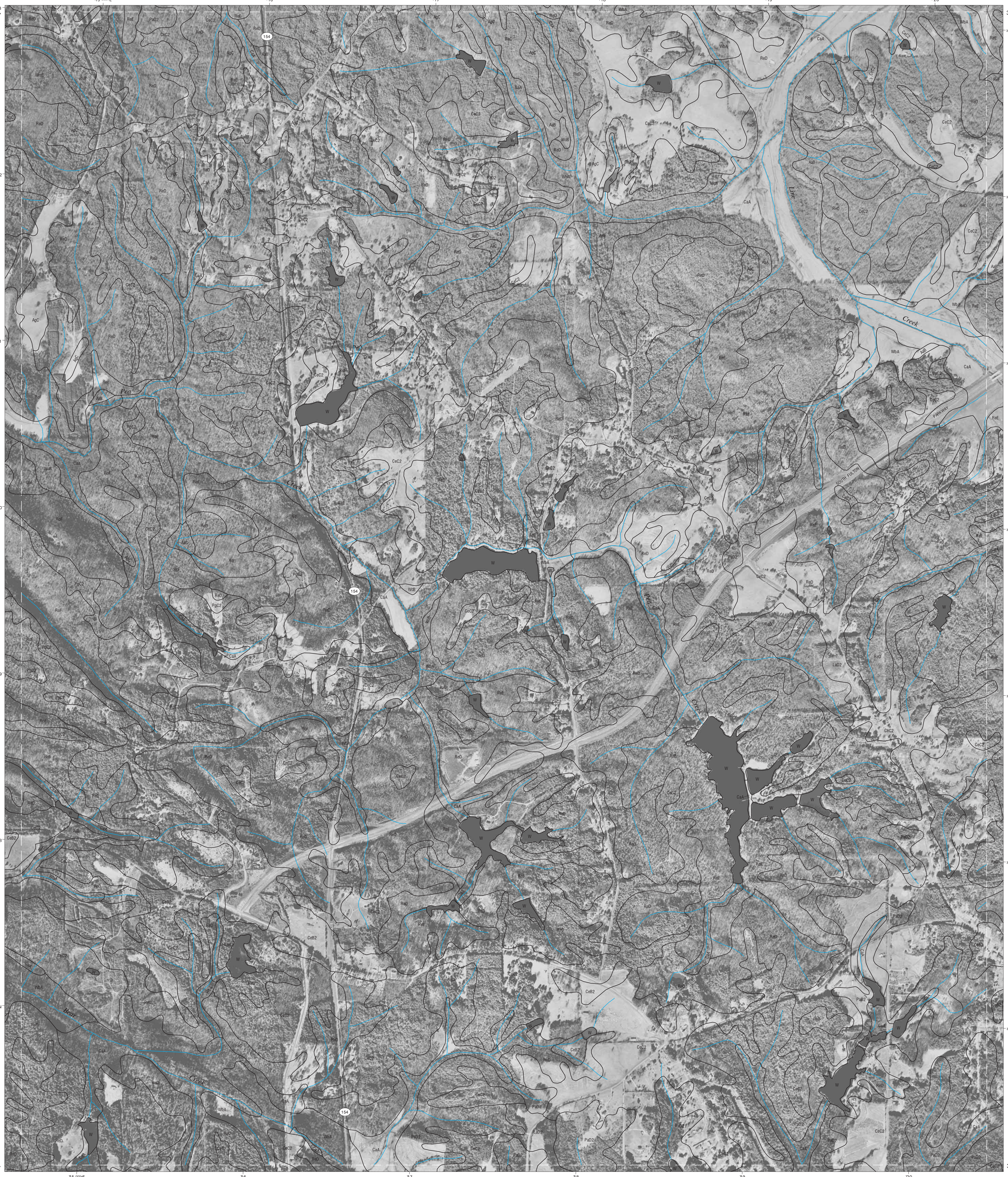
Joins sheet 39, Ben Hill SW

84° 41′15″ 33° 37′30″

84° 37′30″ 33° 37′30″

Joins sheet 46, Palmetto NW

Joins sheet 48, Fairburn NW



33° 33′45″ 84° 41′15″

33° 33′45″ 84° 37′30″

Joins sheet 53, Palmetto SW

Joins sheet 54, Palmetto SE

Joins sheet 55, Fairburn SW

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES: 0.5 0 0.5

FEET: 500 0 500 1000 1500 2000 2500 3000 3500

KILOMETERS: 0.5 0 0.5

37	38	39
46		48
53	54	55

37 CAMPBELLTON SW
38 CAMPBELLTON SE
39 BEN HILL SW
46 PALMETTO NW
48 FAIRBURN NW
53 PALMETTO SW
54 PALMETTO SE
55 FAIRBURN SW

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PALMETTO NE, GEORGIA

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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FULTON COUNTY, GEORGIA
FAIRBURN NW QUADRANGLE
SHEET NUMBER 48 OF 57

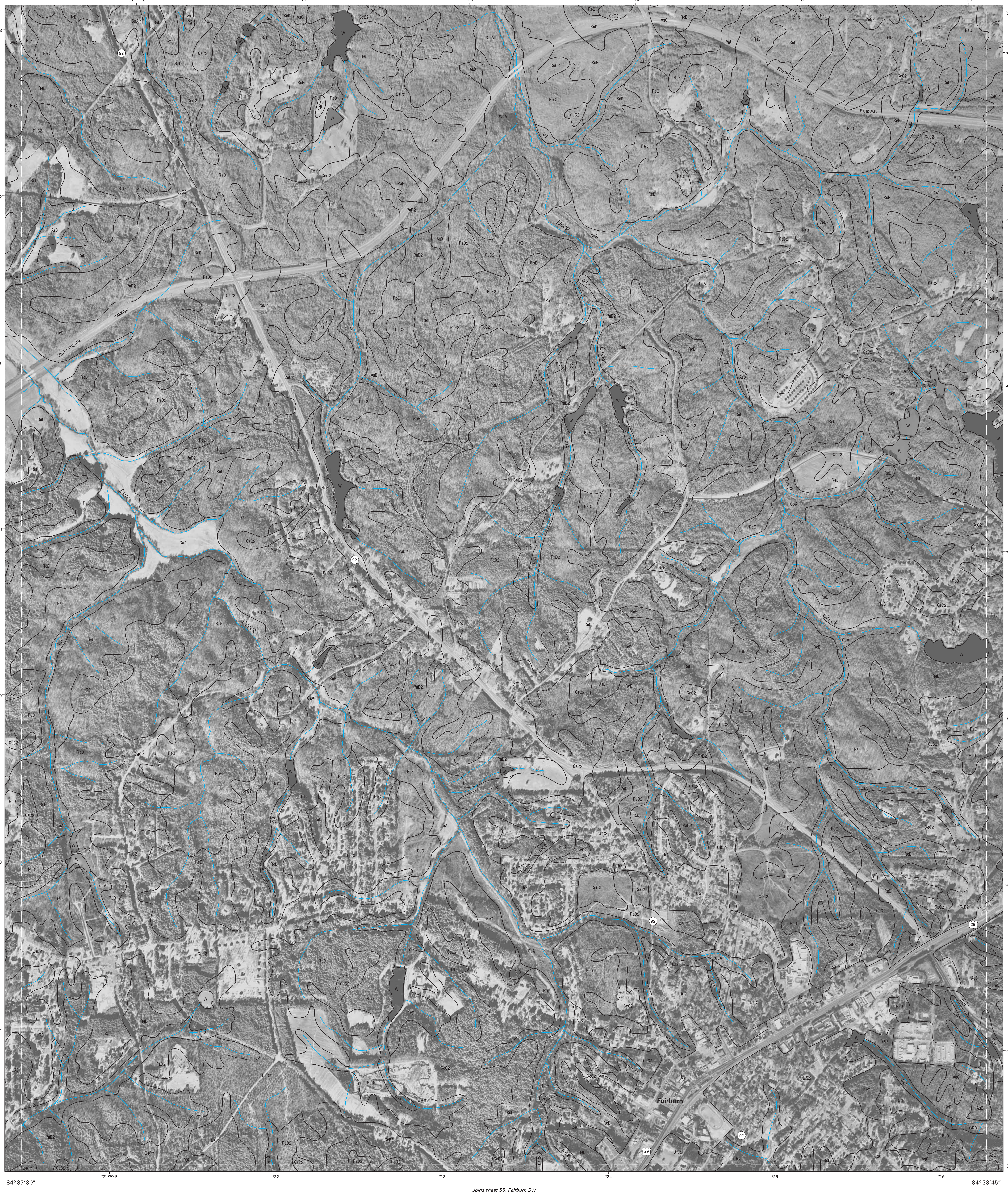
Joins sheet 38, Campbellton SE

Joins sheet 39, Ben Hill SW

Joins sheet 40, Ben Hill SE

84° 37′30″ — 721 000m E — 722 — 723 — 724 — 725 — 726 — 84° 33′45″

33° 37′30″



33° 33′45″

Joins sheet 47, Palmetto NE

Joins sheet 49, Fairburn NE

84° 37′30″ — 721 000m E — 722 — 723 — 724 — 725 — 726 — 84° 33′45″

Joins sheet 54, Palmetto SE

Joins sheet 55, Fairburn SW

Joins sheet 56, Fairburn SE

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

38	39	40
47		49
54	55	56

38 CAMPBELLTON SE
39 BEN HILL SW
40 BEN HILL SE
47 PALMETTO NE
49 FAIRBURN NE
54 PALMETTO SE
55 FAIRBURN SW
56 FAIRBURN SE

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FAIRBURN NW, GEORGIA

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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FULTON COUNTY, GEORGIA
FAIRBURN NE QUADRANGLE
SHEET NUMBER 49 OF 57

Joins sheet 39, Ben Hill SW

Joins sheet 40, Ben Hill SE

Joins sheet 41, Southwest Atlanta SW

84° 33′ 45″ 84° 30′ 00″

33° 37′ 30″

Joins sheet 48, Fairburn NW

Joins sheet 50, Riverdale NW

33° 33′ 45″

84° 33′ 45″ 727 000mE 728 729 730 731 732 84° 30′ 00″

Joins sheet 55, Fairburn SW

Joins sheet 56, Fairburn SE

Joins sheet 57, Riverdale SW

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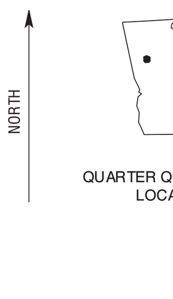

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

39	40	41
48		50
55	56	57

39 BEN HILL SW
40 BEN HILL SE
41 SOUTHWEST ATLANTA SW
48 FAIRBURN NW
50 RIVERDALE NW
55 FAIRBURN SW
56 FAIRBURN SE
57 RIVERDALE SW

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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FULTON COUNTY, GEORGIA
RIVERDALE NW QUADRANGLE
SHEET NUMBER 50 OF 57

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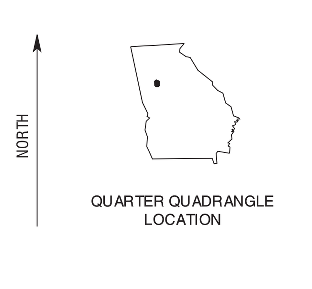
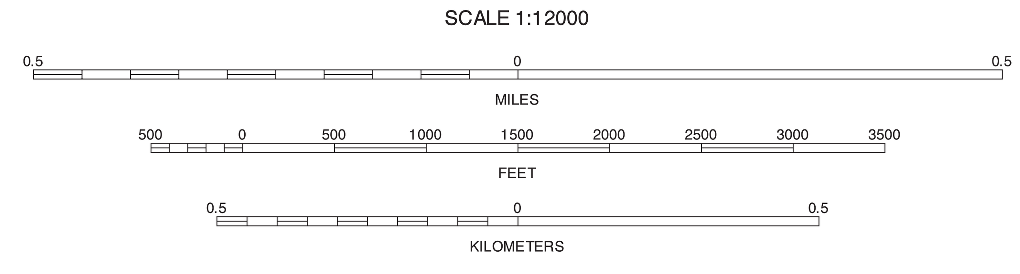
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000



40	41	42
49		
56	57	

40 BEN HILL SE
41 SOUTHWEST ATLANTA SW
42 SOUTHWEST ATLANTA SE
49 FAIRBURN NE
56 FAIRBURN SE
57 RIVERDALE SW

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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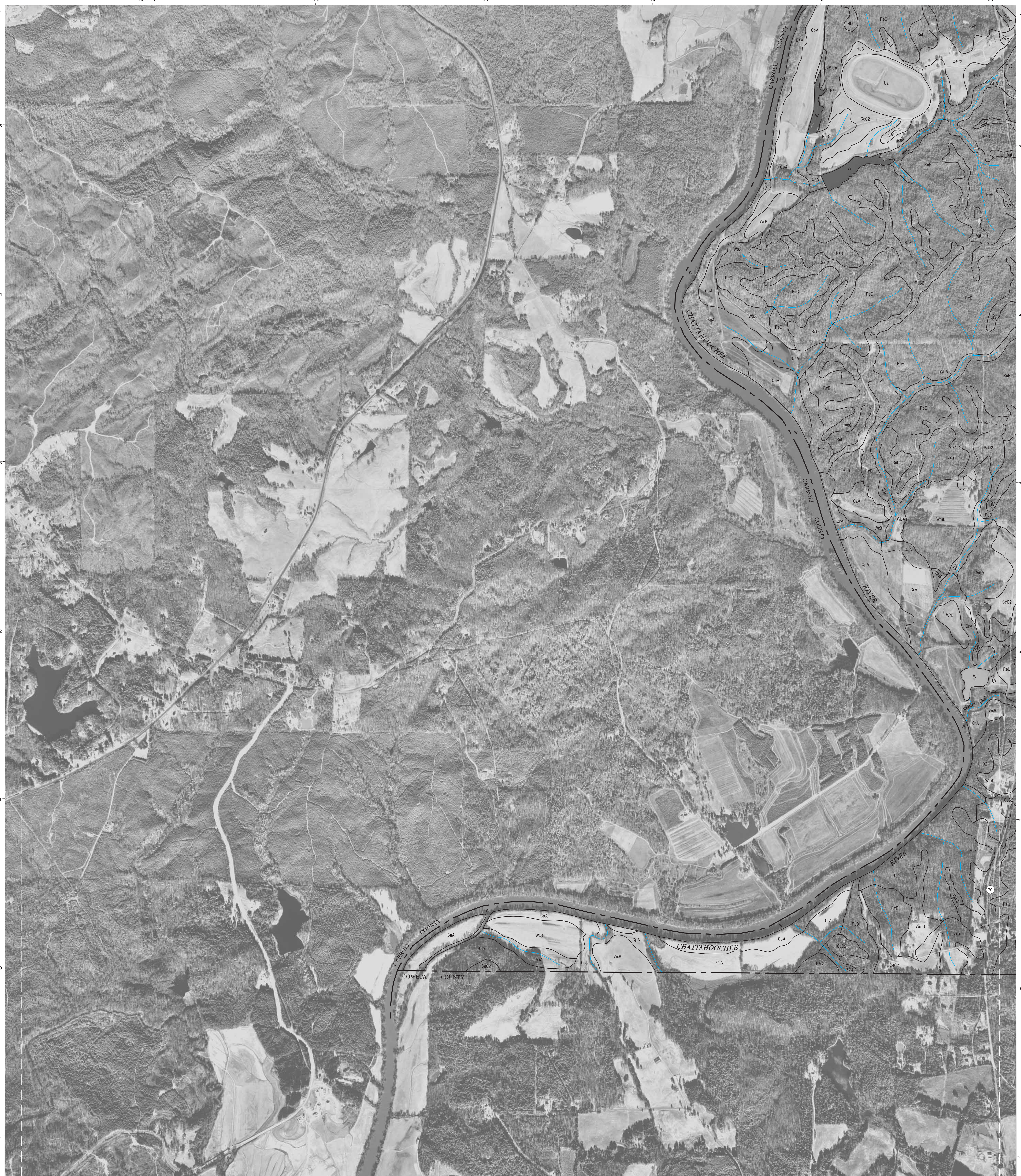
FULTON COUNTY, GEORGIA
RICO SW QUADRANGLE
SHEET NUMBER 51 OF 57



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 3.75 MAPS

44 RICO NW
45 RICO NE
52 RICO SE

RICO SW, GEORGIA
3.75 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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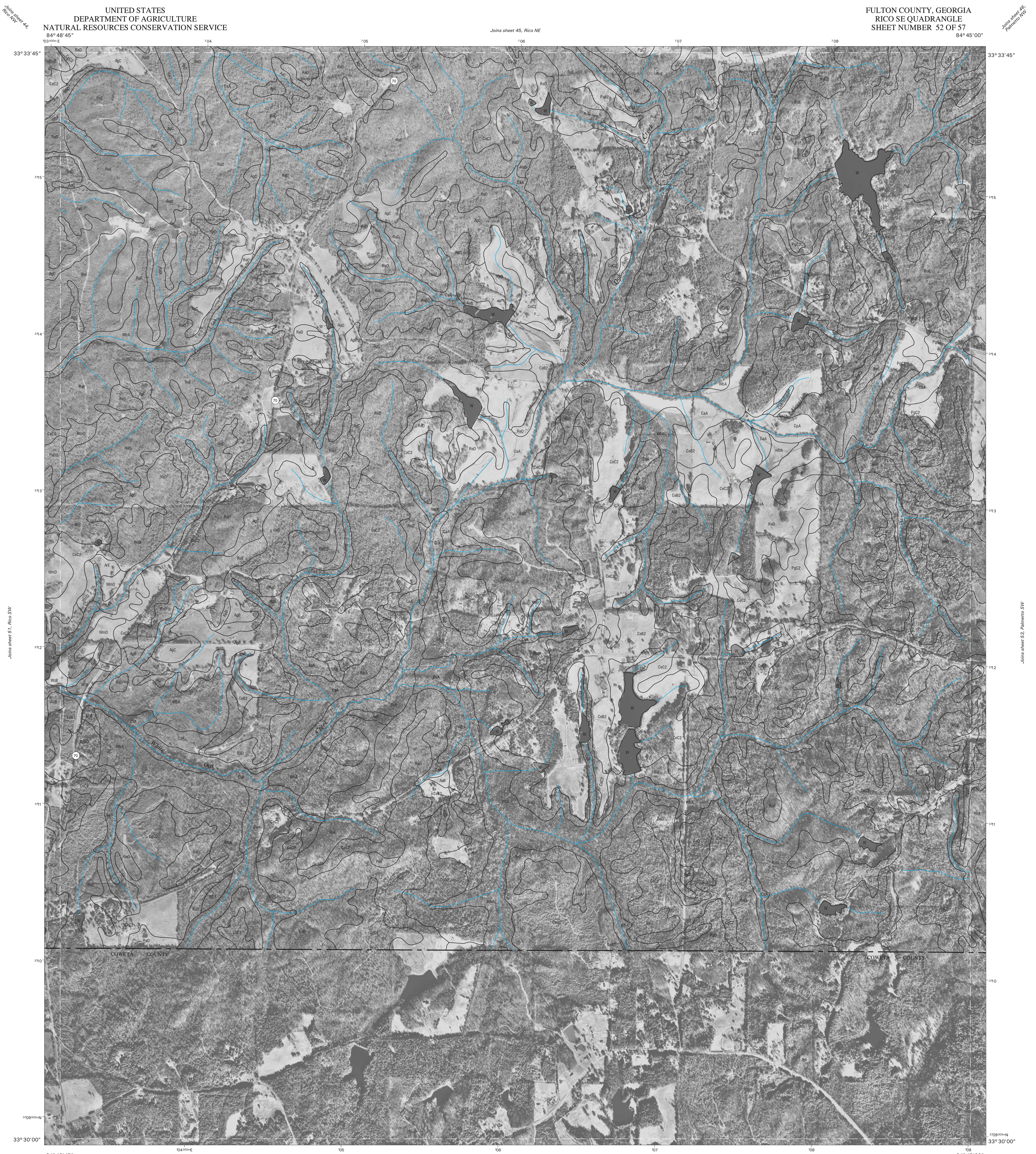
FULTON COUNTY, GEORGIA
RICO SE QUADRANGLE
SHEET NUMBER 52 OF 57



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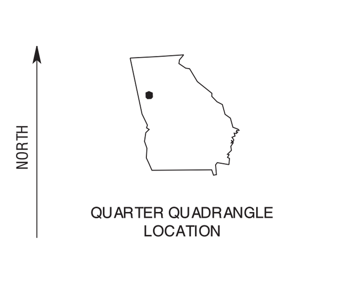
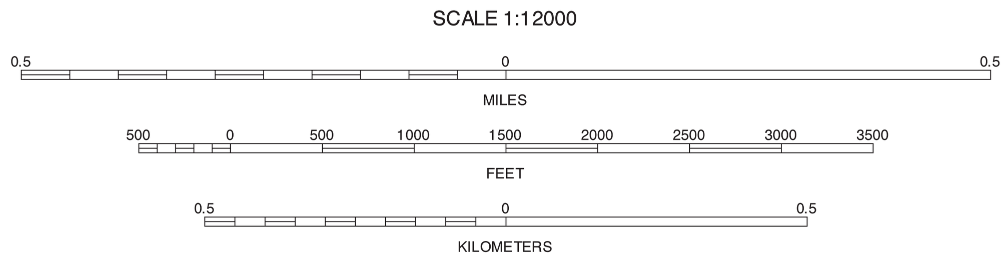
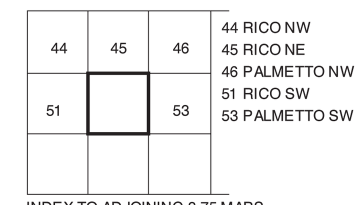
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



SCALE 1:12000





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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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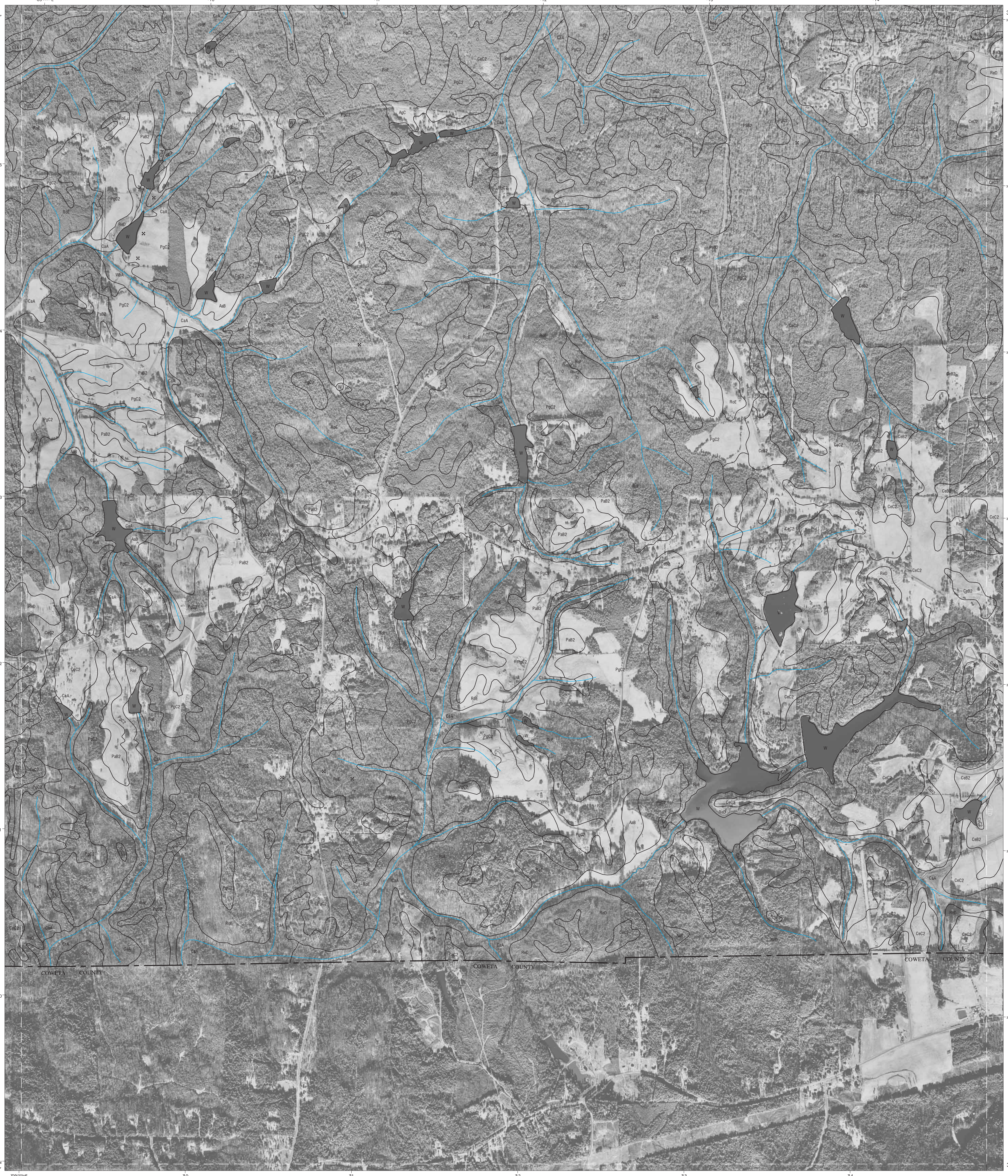
FULTON COUNTY, GEORGIA
PALMETTO SW QUADRANGLE
SHEET NUMBER 53 OF 57



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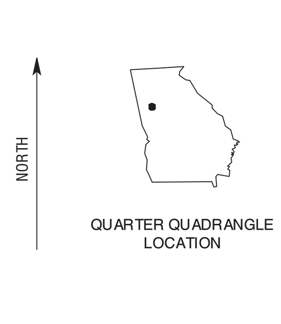
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5 MILES

500 0 500 1000 1500 2000 2500 3000 3500 FEET

0.5 0 0.5 KILOMETERS

45	46	47
52		54

45 RICO NE
46 PALMETTO NW
47 PALMETTO NE
52 RICO SE
54 PALMETTO SE

INDEX TO ADJOINING 3.75 MAPS

PALMETTO SW, GEORGIA

3.75 MINUTE SERIES
SHEET NUMBER 53 OF 57

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

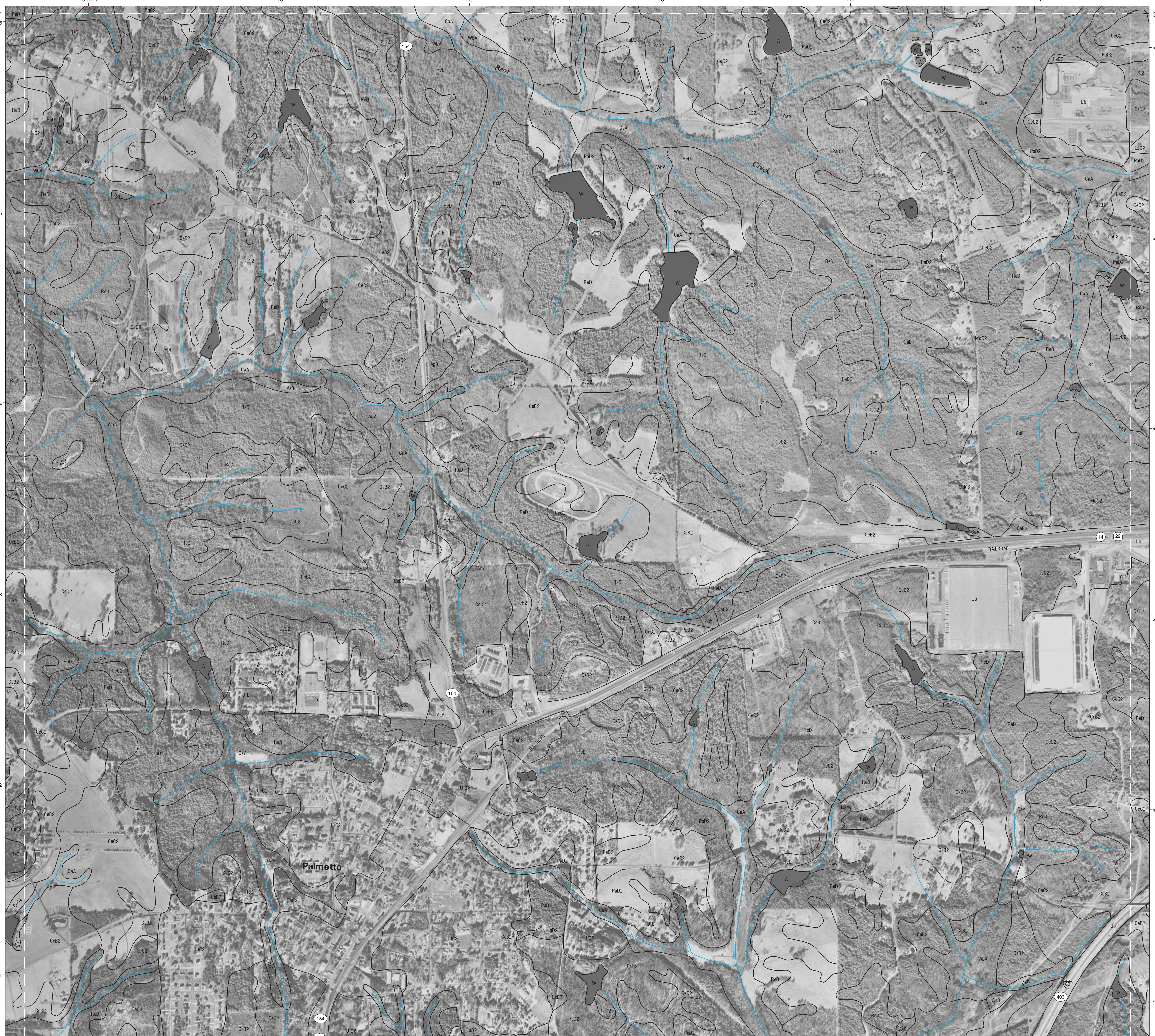
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
PALMETTO SE QUADRANGLE
SHEET NUMBER 54 OF 57

Joins sheet 46, Palmetto NW

Joins sheet 47, Palmetto NE

Joins sheet 48, Fairburn NW



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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

46	47	48
53		55

46 PALMETTO NW
47 PALMETTO NE
48 FAIRBURN NW
53 PALMETTO SW
55 FAIRBURN SW

INDEX TO ADJOINING 3.75 MAPS

PALMETTO SE, GEORGIA
3.75 MINUTE SERIES
SHEET NUMBER 54 OF 57

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
FAIRBURN SW QUADRANGLE
SHEET NUMBER 55 OF 57

Joins sheet 47, Palmetto NE

Joins sheet 48, Fairburn NW

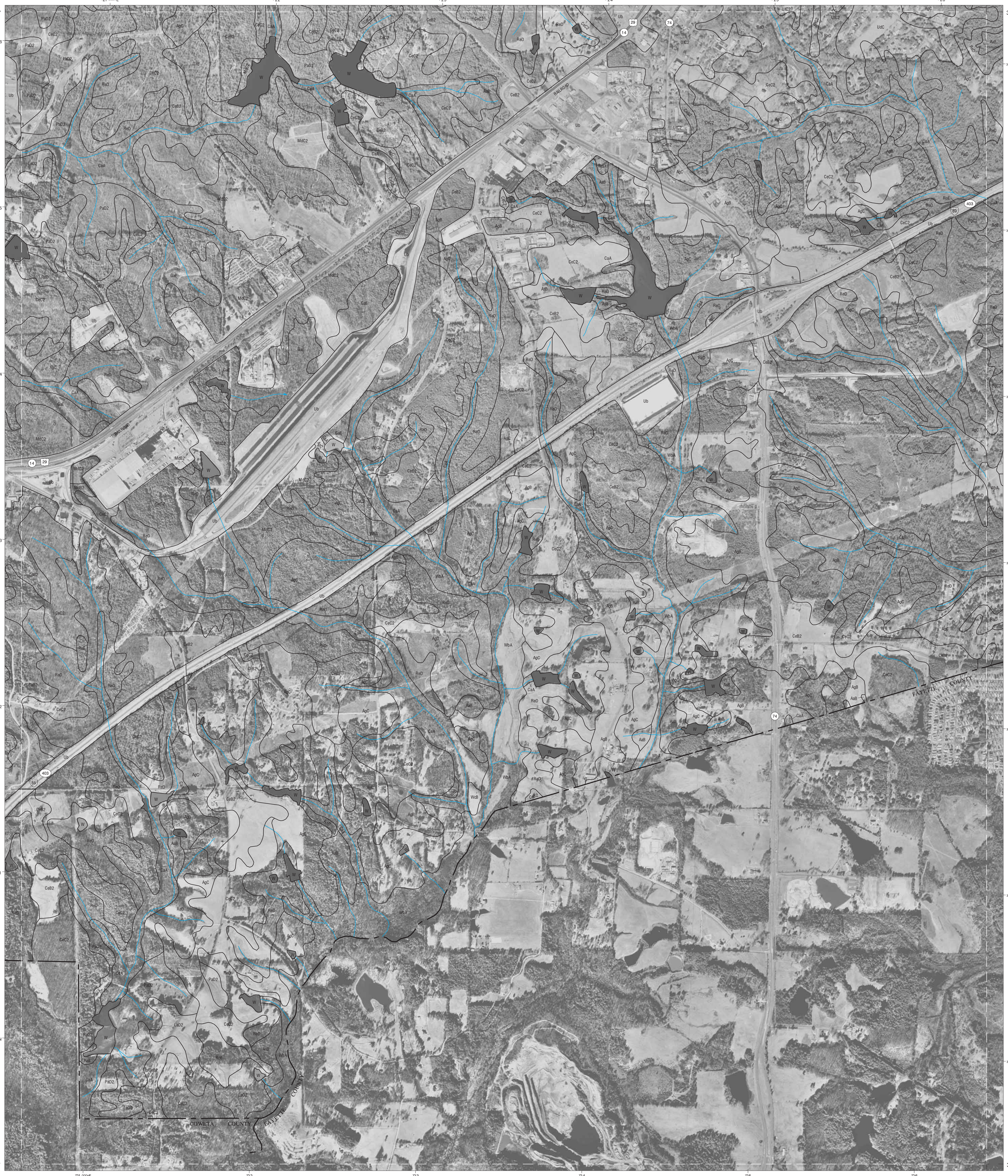
Joins sheet 49, Fairburn NE

84° 37′30″ 33° 33′45″

84° 33′45″ 33° 33′45″

Joins sheet 54, Palmetto SE

Joins sheet 56, Fairburn SE



33° 30′00″ 84° 37′30″

33° 30′00″ 84° 33′45″

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

47	48	49
54		56

47 PALMETTO NE
48 FAIRBURN NW
49 FAIRBURN NE
54 PALMETTO SE
56 FAIRBURN SE

INDEX TO ADJOINING 3.75 MAPS

FAIRBURN SW, GEORGIA
3.75 MINUTE SERIES
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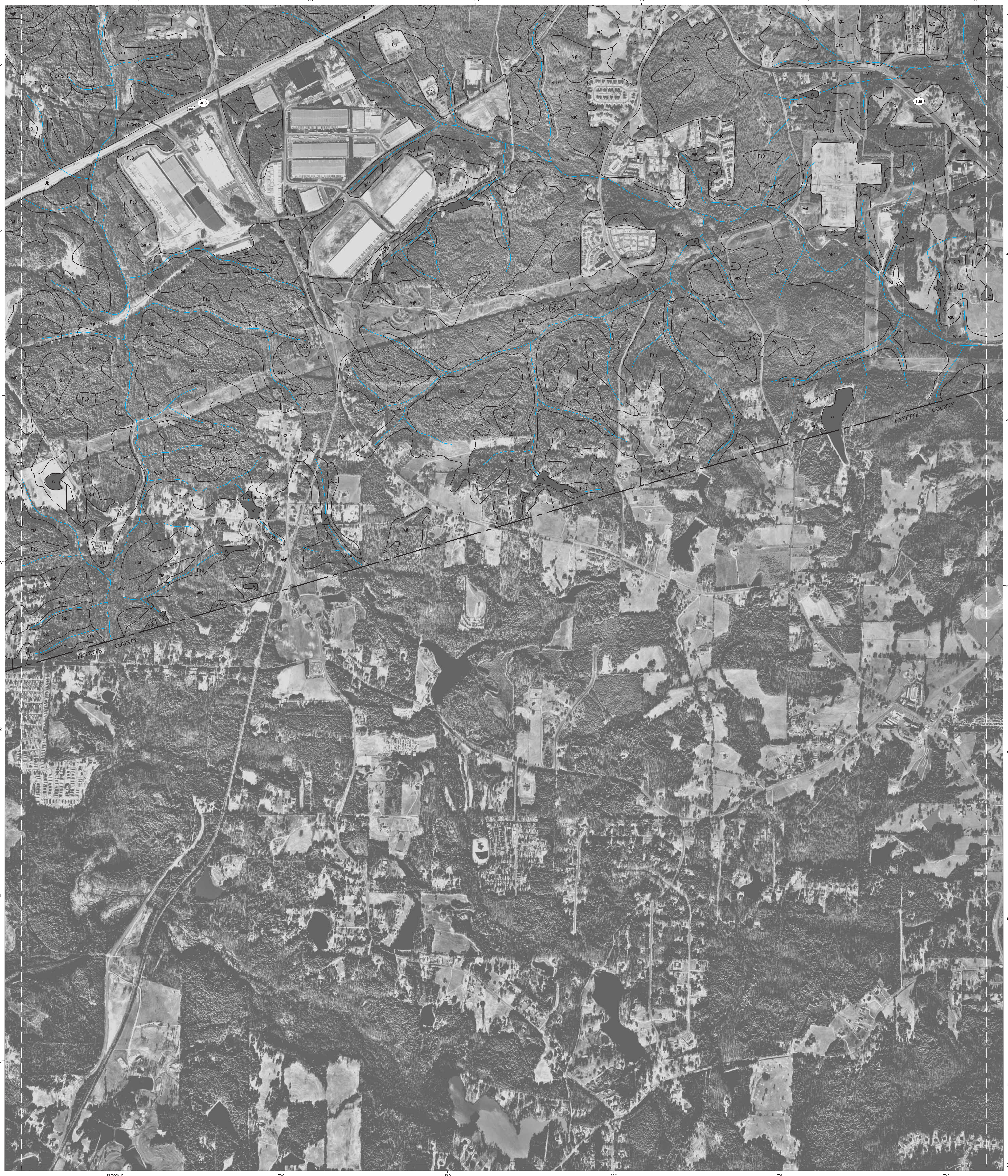
UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
FAIRBURN SE QUADRANGLE
SHEET NUMBER 56 OF 57



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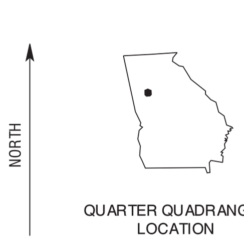
North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.



QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

48	49	50
55		57

48 FAIRBURN NW
49 FAIRBURN NE
50 RIVERDALE NW
55 FAIRBURN SW
57 RIVERDALE SW

INDEX TO ADJOINING 3.75 MAPS

FAIRBURN SE, GEORGIA

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

FULTON COUNTY, GEORGIA
RIVERDALE SW QUADRANGLE
SHEET NUMBER 57 OF 57

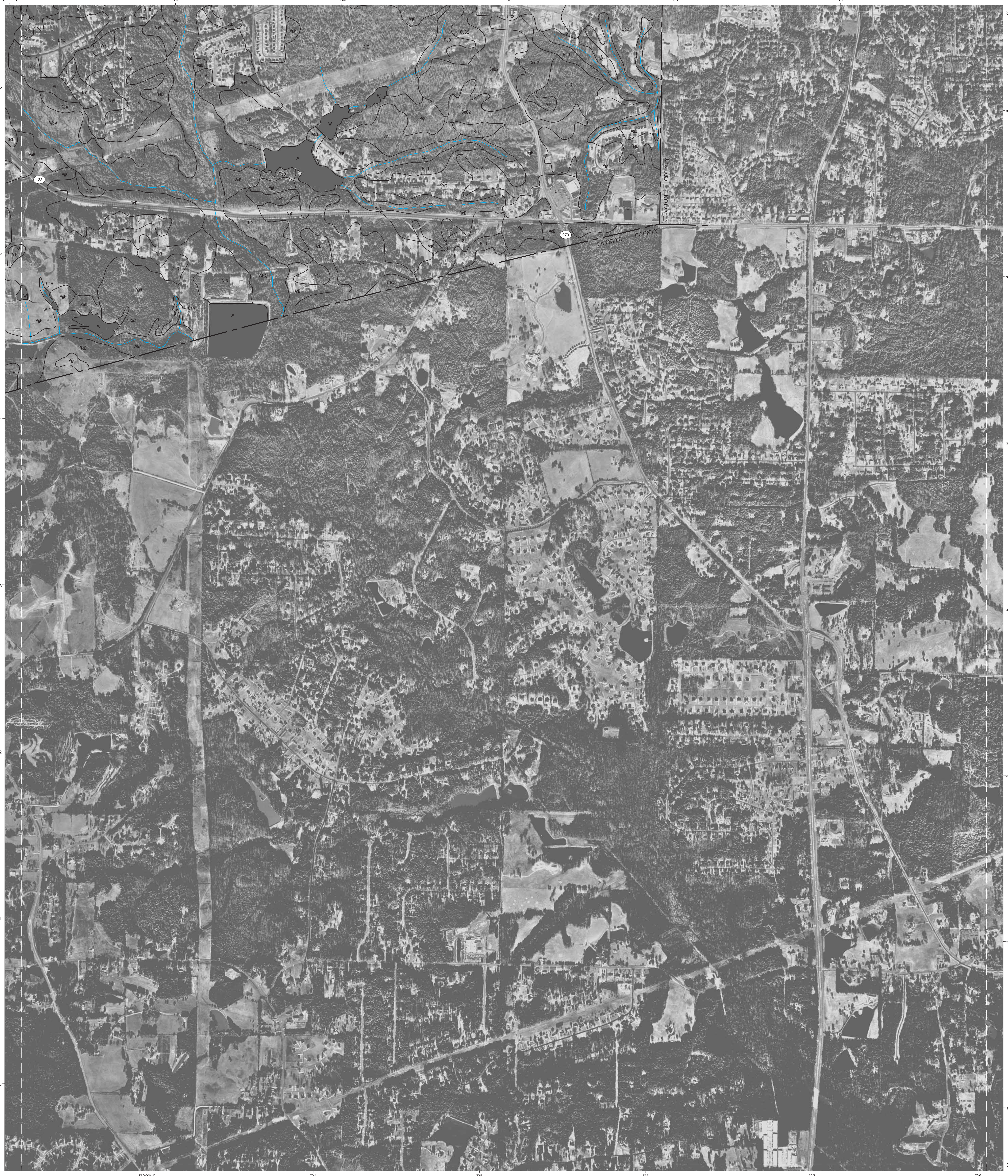
Joins sheet 49, Fairburn NE

Joins sheet 50, Riverdale NW

Joins sheet 56, Fairburn SE

84° 30′00″ | 732000mE | 733 | 734 | 735 | 736 | 737 | 84° 26′15″

33° 33′45″



33° 30′00″

84° 30′00″ | 733000mE | 734 | 735 | 736 | 737 | 738 | 84° 26′15″

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North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zone 16. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUARTER QUADRANGLE LOCATION

SCALE 1:12000

0.5 0 0.5
MILES

500 0 500 1000 1500 2000 2500 3000 3500
FEET

0.5 0 0.5
KILOMETERS

49	50	
56		

49 FAIRBURN NE
50 RIVERDALE NW
56 FAIRBURN SE

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RIVERDALE SW, GEORGIA

3.75 MINUTE SERIES
SHEET NUMBER 57 OF 57

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